

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA, SAN JOSE DIVISION

IN RE: HIGH-TECH EMPLOYEE  
ANTITRUST LITIGATION

THIS DOCUMENT RELATES TO:  
  
ALL ACTIONS

**Master Docket No. 11-CV-2509-LHK**

**EXPERT REPORT OF KATHRYN  
SHAW, PH.D.**

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## **I. Qualifications**

1. I am the Ernst C. Arbuckle Professor of Economics at the Stanford Graduate School of business. I have researched and taught labor economics and personnel economics for over 30 years. Personnel economics is the study of how firms manage their employees, including compensation methods and hiring/firing practices. I also co-pioneered the field of “insider econometrics,” a research field in personnel economics in which researchers go within companies and use insider knowledge and data to identify the performance gains from management practices.<sup>1</sup>

2. Throughout the course of my work on insider econometrics, I have studied and visited approximately 95 firms in the U.S., Europe, and Japan. Firms I have visited have been involved in diverse industries such as software, steel, chemicals, electricity generation, retail trade, services, bio-technology, pharmaceuticals, and trucking sector. The purpose of these visits was to study the effects of the personnel management practices on workers’ productivity. From 2003 to 2009, I (along with Richard Freeman) headed the National Bureau of Economics Research project on “International Differences in the Business Practices and Productivity of Multinational Firms in Advanced Capitalist Countries.” In the course of that work, I edited three books. Two books studied the productivity gains from human resource management practices, and one book studied the structure of wages within and across firms in Organization for Economic Cooperation and Development (“OECD”) countries. For this and earlier work, I have raised \$2.95 million (with other principal investigators) from the National Science Foundation, the Alfred P. Sloan Foundation, the Russell Sage Foundation, the Rockefeller Foundations, and the Department of Labor.

3. For the past decade, I have been studying technology companies in Silicon Valley. From 2005 to 2007, I developed and taught a course at Stanford on *Managing Talent* in

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<sup>1</sup> Casey Ichniowski and Kathryn Shaw, “Insider Econometrics: Empirical Studies of How Management Matters,” *Handbook of Organizational Economic*, editors Robert Gibbons and John Roberts, Princeton University Press, 2013: 263-311. “Insider Econometrics: A Roadmap with Stops Along the Way,” *Labour Economics*, 2009.

which one tool used was to analyze the compensation practices of about forty companies in Silicon Valley. During the course, we immersed students with company CEOs, high level managers, engineers, and other managers and individual contributors. Using a question and answer format, we discussed companies' policies on compensation, performance evaluation, the links between evaluation and pay, bonuses, equity, and promotions. We also studied how companies attract and select new employees, how they award and retain star performers, and how they address outside offers.

4. Technology companies are often featured in my many other classes at Stanford on human resource management strategies for both MBAs and executives. In my current course, *Making Data Relevant*, the curriculum involves how managers can best use compensation and productivity data to manage companies. We perform exercises in which we simulate the use of data to evaluate, reward, and hire employees. During the course of teaching these classes, I have taught executives and MBA students who are or were employed at technology companies and who share their experiences on managing talent and the cultures of their respective firms. Quite often, issues relevant to my opinion in this case arise, including pay for performance, internal equity and individualized compensation systems.

5. I also recently worked with a team of researchers to study how firms in the software industry attract and compensate star talent, using a unique data set on the compensation and careers of about 50,000 software employees.<sup>2</sup> Our focus was to investigate the relationship between different software product types and the worker compensation in the software industry. In particular, we examined how firms in a product line where "home run" products matter, attract and pay star employees. Our investigation was based on a rich longitudinal data set matching employers and employees. Specifically, we measured both earnings levels and earnings growth due to pay increases within firms and job-hopping between firms. We used this rich data source

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<sup>2</sup>Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?", *Economic Journal*, 2009.

to investigate the connection between the payoff to high stakes products and the rewards to stars in the software industry. In short, our analysis revealed that firms that operate in “home run” product markets will pay stars both higher starting salaries and higher performance pay. The highest skilled stars are much more highly valued and paid than those who are slightly less skilled.

6. Prior to my time at Stanford, I taught and researched labor economics, personnel economics and insider econometrics at Carnegie Mellon University from 1981 through 2003. As a part of this work, I used production-level data from firms in the steel industry to model the effects of alternative management strategies on productivity.<sup>3</sup> I have also studied the productivity gains from information technologies in other manufacturing industries.<sup>4</sup>

7. I am widely published on the topic of personnel economics.<sup>5</sup> These, and related publications, have been published in the top three journals in the economics profession, the *American Economic Review*, the *Journal of Political Economy*, and the *Quarterly Journal of Economics*. I am the author of over fifty publications in journals and books. My publications have focused on a wide range of personnel economics topics, including the interplay between wage structures and human resource management practices and their combined impact on employee performance, why companies use particular human resource management practices,

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<sup>3</sup> Casey Ichniowski and Kathryn Shaw, “Beyond Incentive Pay: Insiders’ Estimates of the Value of Complementary Human Resource Management Practices,” 17 *Journal of Economic Perspectives* 155, 163–168 (2003). Casey Ichniowski and Kathryn Shaw, “Insider Econometrics: Empirical Studies of How Management Matters,” *Handbook of Organizational Economic*, editors Robert Gibbons and John Roberts, Princeton University Press, 2013: 274-77. Casey Ichniowski and Kathryn Shaw, “Old Dogs and New Tricks: Determinants of the Adoption of Productivity-Enhancing Work Practices,” *Brookings Papers on Economic Activity, Microeconomics* (1995), 1-65.

<sup>4</sup> Ann Bartel, Casey Ichniowski and Kathryn Shaw, “How Does Information Technology Affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement, and Worker Skills,” *Quarterly Journal of Economics* vol. 122 (4) (2007): 1721-1758.

<sup>5</sup> Edward Lazear and Kathryn Shaw, “Personnel Economics: The Economist’s View of Human Resources,” *Journal of Economic Perspectives*, vol. 21 (4), (Fall 2007): 91-114. Casey Ichniowski and Kathryn Shaw, “Beyond Incentive Pay: Insiders’ Estimates of the Value of Complementary Human Resource Management Practices,” *Journal of Economic Perspectives*, vol. 17 (1) (Winter 2003): 155-178.

the dispersion of talent between firms and the variance of compensation within firms, the impact of information technology on productivity, and the productivity impact of non-compensation practices (such as the use of work teams, carefully interviewing and selecting workers to identify those with high level job and task skills, and ongoing training).<sup>6</sup>

8. I hold an A.B. degree from Occidental College in Los Angeles California and a Ph.D. in Economics from Harvard University. I was a Senate confirmed Member of the Council of Economic Advisors, Executive Office of the President, from 1999 to 2001. I have been an editor of the *Journal of Labor Economics* and the *Review of Economics and Statistics*, and on the Editorial Advisory Board of the *Journal of Economic Perspectives*. I am currently a board member of the Society of Labor Economists, and in 2008 was elected a Fellow of the Society of Labor Economists. In 2001, I received the Columbia University award for the best paper on international business, and in 1998 I was honored as the recipient of the Minnesota Award for Employment Research for the best paper in 1997-98 on the topic of employment issues. I have received several teaching awards, including the Trust Faculty Fellow for 2005-06 and 2011-12, and the Xerox Research Chair. I have served on a Research Panel of the National Science Foundation and am currently a board member of the STEP panel of the National Academy of Sciences. I have given keynote lectures, including those at meetings of the Society of Labor Economics and the European Labour Economics Association.

9. Attached as Appendix A is my Curriculum Vitae.

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<sup>6</sup> See, e.g., Kathryn Shaw, "Insider Econometrics: A Roadmap with Stops Along the Way," 16 *Labour Economics* 607 (2009): 607-617; Casey Ichniowski and Kathryn Shaw, "Beyond Incentive Pay: Insiders' Estimates of the Value of Complementary Human Resource Management Practices," 17 *Journal of Economic Perspectives* 155, 163-168 (2003). Edward Lazear and Kathryn Shaw "Wage Structure, Wages, and Mobility," in *An International Comparison of the Structure of Wages* (2008). Casey Ichniowski and Kathryn Shaw, "Old Dogs and New Tricks: Determinants of the Adoption of Productivity-Enhancing Work Practices," *Brookings Papers on Economic Activity: Microeconomics* (1995): 1-65.

## II. Introduction

10. I understand that Plaintiffs allege defendants Adobe Systems Inc. (“Adobe”), Apple Inc. (“Apple”), Google Inc. (“Google”), Intel Corporation (“Intel”), Intuit Inc. (“Intuit”), Lucasfilm Ltd. (“Lucasfilm”) and Pixar (collectively, “Defendants”) conspired to refrain from cold calling each other’s employees and other forms of solicitations. Plaintiffs claim that the alleged conspiracy caused compensation to be suppressed for all or nearly all salaried employees at each Defendant.

11. I understand that the Court denied Plaintiffs’ first class certification motion on the ground that Plaintiffs failed to support or confirm their “theory that there was a rigid wage structure such that an impact to some of Defendants’ employees would necessarily have resulted in an impact to all or nearly all employees.”<sup>7</sup>

12. I further understand that Plaintiffs have filed a renewed motion, asking the Court to certify a class of employees “in the technical, creative, and/or research and development fields during part or all of the period from January 2005 through December 2009 (the “Technical Class”). Plaintiffs offer the Expert Witness Report of Kevin F. Hallock (“Hallock Report”) in an attempt to answer the Court’s question whether Defendants had such rigid compensation structures that suppression of wages to some employees would have affected all or nearly all class members.

13. Dr. Hallock states that defendants each had formalized pay systems that have certain features that “could” spread an impact on compensation for some employees to all or nearly all technical class employees. He clarified at deposition that impact “could” be spread

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<sup>7</sup> Order Granting in Part, Denying in Part Motion for Class Certification, *In re: High-Tech Employee Antitrust Litigation*, Case No. 11-CV-02509-LHK, Dkt. 382, Filed 04/05/2013 (“Class Certification Order”) at 43:1-4; *id.* at 36:3-7 (“However, Dr. Leamer fails to explain how it may be inferred from [his analysis] that Defendants’ salary structures were *so* rigid that compensation for employees with entirely different titles would necessarily move together through time such that a detrimental impact to an employee with one job title would necessarily result in an impact to other employees in entirely different jobs (*i.e.*, that any impact would ripple across the entire salary structure.)”; *id.* at 45:1-3 (“The Court is most concerned about whether the evidence will be able to show that Defendants maintained such rigid compensation structures that a suppression of wages to some employees would have affected all or nearly all Class members.”)).

through three “avenues”: (i) internal equity, (ii) use of external market survey data to benchmark internal salary ranges, and (iii) use of external market data to benchmark annual salary merit increase percentages. Hallock Dep. 153:8-158:6, 214:25-215:11, 227:25-230:10. Dr. Hallock also states that impact could be spread based on a “top of the box” theory. None of these avenues would necessarily lead to or require transmission of impact on some employees to all or nearly all class members.

### **III. Assignment**

14. Counsel for Defendants have asked me to address Dr. Hallock’s opinions in this matter, and offer my opinion regarding whether he has demonstrated that a suppression of wages to some employees would have affected all or nearly all Class members.

### **IV. Materials Reviewed**

15. In reaching my opinions, I reviewed and considered Plaintiffs’ Consolidated Amended Complaint, Dr. Hallock’s report, material cited by Dr. Hallock, relevant exhibits attached to the expert report of Dr. Kevin Murphy, deposition transcripts and exhibits, declarations and exhibits, documents produced in discovery, expert reports, and my 30 years of experience researching, publishing, and teaching in the fields of labor economics and personnel economics, including experience working with Silicon Valley companies. Appendix B includes the materials I have relied on and reviewed for this matter.

### **V. Summary of Opinions**

16. Dr. Hallock’s conclusion that Defendants each had formalized systems does not answer the question of whether suppression of wages to some employees would affect all or nearly all other employees. Consistent with technology firms in Silicon Valley (and unlike the government or unionized firms Dr. Hallock points to), Defendants employ a pay for performance philosophy implemented by individual managers based on each manager’s subjective evaluation of their employees’ performance, talent, skills, contribution to the company, and potential. As I would expect, the exhibits prepared by Defendants’ expert Dr. Kevin Murphy regarding the



variance in pay changes in Defendants' compensation data is consistent with a pay for performance system. Compensation varies dramatically between and among employees within the same job titles and across job titles.

17. In addition to Defendants' pay for performance philosophy, Defendants' pay practices and entire pay process (from using external market data, to creating internal salary ranges, to empowering managers to evaluate employees and set pay, etc.) does not support a theory that pay increases for some individuals will spillover to all or nearly all class members. In Defendant firms, and the technology firms I have studied, there is no propagation mechanism built in to the pay process.

18. Dr. Hallock's prediction that impact "could" spread through certain "avenues" is flawed. He first relies on a misplaced view of "internal equity" to argue that any impact on compensation due to the alleged conspiracy could have been transmitted to all or nearly all class members due to internal equity considerations. In a pay for performance culture, internal equity is but one factor considered by managers in setting pay for individuals. Internal equity is simply a notion that managers should consider the pay of similarly performing employees doing similar work when setting an individual's pay. The concept of internal equity was used at the manager level to make individual employee compensation decisions, not on a company-wide level to make automatic adjustments to groups of people. From my experience and based on the evidence in this case, there is no reason that internal equity should impact workers who are doing dissimilar work, such as employees in different jobs, or workers who perform at different levels.

19. Dr. Hallock's next "avenue" relates to Defendants' use of external market data to benchmark internal salary ranges. Dr. Hallock concludes that if the market compensation data is suppressed (as a result of the alleged anti-solicitation agreements), then internal compensation levels at Defendants could also be suppressed. However, given how Defendants used external market data, I would not expect this "avenue" to lead to impact on all or nearly all class members. First, Defendants did not use the same compensation benchmarking data and each benchmarked against a large group of firms beyond the one, two, or three with which it had an

alleged cold calling agreement. Given the large size of the labor market surveyed by consulting firms, it is hard to imagine that the suppression of pay in a few jobs could lead to suppression of pay in benchmark data. Second, assuming that market data was in fact suppressed, most Defendants used job title specific market data to benchmark internal job specific salary ranges. Thus, suppressed market data for one job title would not affect data for another job title, nor would suppressed salary range for one job title affect the salary range for another job title. Third, Dr. Hallock ignores the fact that changes in salary ranges do not lead to changes in actual compensation levels for all employees.

20. Dr. Hallock's next theory, that suppressed market data led to suppressed merit increase budget, is equally unsupported. I am not aware of any evidence that market data on base salary increase percentages was suppressed, or that suppressed data resulted in impact on all or nearly all class members.

21. Finally, Dr. Hallock's "top of the box" theory is incorrect. This theory finds no basis in the Defendants' compensation systems. The documents and testimonies show the opposite – that pay determinations were left in the hands of individual managers based on their assessment of individual performance.

#### **VI. Defendants' Pay for Performance Philosophy Leads to Large Variances in Pay Based on Subjective Manager Evaluations.**

22. Dr. Hallock spends much of his report explaining compensation design and summarizing general concepts of compensation structures and principles that might apply across typical large firms in the economy. Hallock ¶¶ 10-109. He then summarizes evidence from the Defendants and concludes that "the defendants each had formalized or sophisticated human resource (HR) or compensation systems of one type or another." Hallock ¶ 45.

23. I agree that Defendants had formalized compensation systems or structures to administer compensation. In Silicon Valley and elsewhere, most large companies have formalized compensation systems or structures to administer pay, including using job

classification systems, job titles, benchmarking to external market intelligence, setting salary ranges, providing guidelines and recommendations for increases to compensation, etc.<sup>8</sup>

24. The fact that a company has a formalized compensation system or structure, however, does not answer the question of whether suppression of wages to some employees would affect all or nearly all other employees. A formalized compensation system can be carried out and implemented in a way such that some workers' wages can be adjusted without widespread effect on other workers.

25. Dr. Hallock stops short of adequately addressing Defendants' compensation philosophies, how Defendants' compensation systems were actually implemented, how actual pay determinations were made, and what the actual compensation data in this case shows. To test and verify whether impact spread to all or nearly all class members, one should examine the evidence regarding how actual pay decisions were made and the compensation data.<sup>9</sup>

26. Consistent with other technology firms I have studied, Defendants employ a pay for performance philosophy implemented by individual managers based on each manager's subjective evaluation of their employees' performance, talent, skills, contribution to the company, and potential.<sup>10</sup> Technology firms adopt a pay for performance philosophy to attract high performers and incentivize greater effort and talent. It is, however, difficult to measure performance in a mechanical or objective way for high-tech employees. For example, in software development, the number of lines of code written in one day could be measured, but

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<sup>8</sup> See generally Edward Lazear and Kathryn Shaw, "Personnel Economics: The Economist's View of Human Resources," *Journal of Economic Perspectives*, 21 (4), (Fall 2007): 91-114.

<sup>9</sup> Casey Ichniowski and Kathryn Shaw, "Insider Econometrics: Empirical Studies of How Management Matters," *Handbook of Organizational Economic*, editors Robert Gibbons and John Roberts, Princeton University Press, 2013: 263-311 (describing the benefits of insider economics, which uses insider information and data to analyze the impact of human resources management practices. "Insider Econometrics: A Roadmap with Stops Along the Way," *Labour Economics*, 2009 (same).

<sup>10</sup> Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, and Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?," *Economic Journal*, 2009, 4-8 (describing software industry compensation practices). Paul Oyer and Kathryn Shaw, "Reward Systems," Human Resource Class Notes: Chapter 4 (Spring 2012) (describing subjective performance evaluations).

may tell the firm nothing meaningful about performance (such as, the quality of the code or the complexity of the project). Thus, firms in high-tech, like Defendants, leave pay decisions in the hands of individual managers, who are in the best position to evaluate employee performance based on their discretion.<sup>11</sup>

27. Appendix C is a collection of the evidence I have seen in this case demonstrating that Defendants believed in the managerial philosophy of paying for performance and implemented this philosophy by empowering managers to evaluate performance and set pay.

28. From the employer's perspective, a pay for performance system can increase productivity by incentivizing the right behavior and attracting the right workers. There is extensive literature on the significant amount of productivity increase that results from switching from a traditional lockstep pay system to a pay for performance system. The classic paper, by Lazear (2000), follows one particular firm that changed its pay practices from paying on an hourly basis to paying for productivity. The firm in question replaced broken windshields at the customer's house. When the firm instituted pay for performance by giving piece-rate pay, not only did employees install more windshields, but the firm attracted better employees who were very good at installing windshields. These factors raised productivity by 44%.<sup>12</sup>

29. Dr. Hallock refers to examples from the government sector or unionized setting to support his conclusions, as if to suggest that Defendants used similar systems. Hallock ¶¶ 15, 18, 206, Figure 1. Dr. Hallock also repeatedly relied on these examples during his deposition. Hallock Dep. 95:15-96:12 (referencing government organizations, state police officers, school

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<sup>11</sup> Paul Oyer and Kathryn Shaw, "Reward Systems," Human Resource Class Notes: Chapter 4 (Spring 2012). In contrast, certain firms are better suited to measure performance based on objective measures (such as, a call center may measure productivity and performance by tracking the number of calls processed or the length of each call).

<sup>12</sup> See also Casey Ichniowski and Kathryn Shaw, "Insider Econometrics: Empirical Studies of How Management Matters," *Handbook of Organizational Economic*, editors Robert Gibbons and John Roberts, Princeton University Press, 2013: 263-311. Edward Lazear and Kathryn Shaw, "Personnel Economics: The Economist's View of Human Resources," *Journal of Economic Perspectives*, 21 (4), (Fall 2007): 91-114. Kathryn Shaw, "Insider Econometrics: A Roadmap with Stops Along the Way," *Labour Economics*, 2009.

teachers); 127:22-129:25 (stating public school teachers' compensation is an example of a rigid pay structure). Dr. Hallock's reliance on these systems illustrates the core problem with his conclusions. Unlike Defendants in this case, government and unionized firms employ a traditional compensation philosophy.<sup>13</sup> These traditional firms base pay on measures such as education, tenure, and hours worked, rather than on individualized performance and output. Traditional compensation philosophy therefore leads to a compensation structure in which compensation decisions are not made at the individual level, but are set by a rigid rule of salary schedules that leave no discretion for management to determine the wages of individuals. Because the traditional compensation system has rigid rules for allocating pay, it maintains a salary structure in which the pay of one worker is fixed relative to the pay of another worker.

30. In contrast, in technology based firms (among others), the compensation system generally begins with pay ranges assigned to job codes, but these serve as mere guidelines for managers as they use their discretion to determine compensation when hiring, promoting, and allocating annual pay increases to individuals as a function of performance and contribution. Unlike traditional compensation firms, the pay of one worker is highly variable relative to the pay of another worker, depending on how their individual performance varies over time and their managers' exercise of discretion.

31. The pay for performance system of technology companies thus leads to variances in pay across workers that reflect differences in workers' skills or effort.<sup>14</sup> I have reviewed the

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<sup>13</sup> Casey Ichniowski and Kathryn Shaw, "Beyond Incentive Pay: Insiders' Estimates of the Value of Complementary Human Resource Management Practices," 17 *Journal of Economic Perspectives* 155, 163–168 (2003): 155-80 (contrasting the objectives of "innovative" human resource management practices and to contrast these with more "traditional" practices). Cf. Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?", *Economic Journal*, 2009: 5 ("[S]oftware firms on average pay relatively high salaries, but a small subset of workers in the industry receive particularly high wages."). *Id.* at 33("[T]he increasing movement of the economy towards knowledge workers has increased the value of stars to firms, and thus increased the variance of pay.").

<sup>14</sup> Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?", *Economic Journal*, 2009: 4 ("The highest skilled stars are much more highly valued and paid than those who are slightly less skilled."). Hallock himself wrote that "it should be recognized that paying people the same for working for a period of time (for example) may make others upset,

exhibits prepared by Defendants' expert Dr. Kevin Murphy regarding the variance in pay changes in Defendants' compensation data. As one would expect in a pay for performance system, the compensation data shows that compensation changes vary dramatically among employees within the same job titles and across job titles, as would be expected when decisions are highly individualized based on myriad factors including an individual employee's performance, talent, skills, education, potential, demand and overall value to the firm; whether the employee is a "star" employee or a poor performer; an employee's past compensation history; the budget for compensation; the idiosyncrasies of the manager making the compensation decision; and many other factors and considerations that go into deciding the pay for an individual employee.<sup>15</sup>

32. This significant variation in compensation across employees is at odds with a compensation structure in which changes in compensation for individual employees resulting from cold calls necessitates changes in compensation for all class members.

**VII. Defendants' Pay Practices Do Not Support Spillover of Pay Increase From One Individual to All or Nearly All Class Members.**

33. The pay practices of technology firms form a cohesive system of managerial practices aimed at supporting superior company performance in the marketplace. Based on my experience and the materials I have reviewed in this case, technology firms, including

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(continued...)

because some are more productive per period than others." Kevin F. Hallock, *Pay: Why People Earn What They Earn And What You Can Do Now To Make More* 87 (Cambridge Univ. Press 2012).

<sup>15</sup> Thomas Lemieux, W. Bentley MacLeod, and Daniel Parent, "Performance Pay and Wage Inequality," *The Quarterly Journal of Economics* (2009) 124 (1):1-49. Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?", *Economic Journal*, 2009: 4 ("The highest skilled [software industry] stars are much more highly valued and paid than those who are slightly less skilled."). Edward Lazear and Kathryn Shaw, "Personnel Economics: The Economist's View of Human Resources," *Journal of Economic Perspectives*, vol. 21 (4), (Fall 2007): 4 ("[W]age inequality has risen markedly mainly because the upper tail of high earners has grown. This rising variance of pay has occurred within occupations and across occupations. The variance of pay has also risen within firms and across firms." (citing Autor, Katz, and Kearney, 2006)).

Defendants, generally use a typical set of compensation practices. The large variances in pay at each of the Defendants reflect compensation systems that were flexible enough to allow the adjustments of an individual employee's compensation without shifting the entire compensation structure.

34. Pay is set first during the hiring process. Jobs are typically arranged in job families, and then in job codes and grade levels within these families. When the manager makes the hiring decision, he/she uses his/her discretion along with the guidelines of pay ranges (formed from market intelligence) to set the pay of the individual he is hiring. The firm typically gathers data from consulting firms, such as Radford and others, on pay by job code. The firm then generally sets a midpoint target and a range for job codes within the firm. When the manager hires an employee, he chooses the pay that fits the individual new hire, based on the new hire's expected value to the firm and his alternative wage at other firms.

35. Pay is adjusted during the promotion process. The employee may be promoted to a higher grade level within the same job code, or to a new job code. The decision to promote is determined by each manager, based on his assessment that the employee can be expected to perform at the higher level of performance consistent with the promotion. As in the decision to hire, the decision to promote is accompanied by a personalized pay decision: pay is set according to the employee's expected contribution to the firm.

36. Pay may also be adjusted during the annual or semi-annual performance review process. Each manager is given a budget and told to allocate that budget to pay increases based on the performance of each employee. Those who are star employees will receive large raises; those who are laggard employees will receive little or no raise.

37. Pay may also be adjusted when bonuses and equity are allocated. These are allocated based on an individual's performance or based on the performance of his team.

38. Lastly, based on my experience, in relatively rare instances, pay may be adjusted to retain an employee when he/she receives an outside offer. I say these instances are relatively

rare because pay increases are typically only offered to the high achievers. The lower achievers are generally allowed to leave.

39. At each juncture of this typical process for determining pay – the hiring, promotion, review, or retention process – individual performance is key. I would not expect a pay gain for one worker to lead to a pay gain for another worker. Consider three workers, A, B, and C. Assume A is the star performer, B is the median performer, and C is the below average performer. The star performer, A, will typically be paid for performance at various stages in his work life: he will likely be at the upper end of the pay range when he is hired; he will likely be promoted to a higher pay range; or he will likely receive a bigger annual pay raise. If A receives an outside offer and that offer is matched by his employer, I would not expect his higher pay to spill over to those who do not have his capabilities.

40. Taken as a whole, there is no apparent propagation mechanism built in to the pay process in Defendant firms and other technology firms I have studied.

**VIII. Dr. Hallock’s Prediction That Impact “Could” Spread Through Certain “Avenues” Is Inaccurate.**

41. During his deposition, Dr. Hallock was asked to explain his opinion that the anti-solicitation agreements could lead to suppression of pay for all or nearly all class members. Dr. Hallock testified that three “avenues” of pay suppression are possible, but concedes that none of the three avenues would necessarily lead to impact on all or nearly all class members. Hallock Dep. 153:08-158:06, 214:25-215:11, 227:25-230:10. I address each “avenue” below.

**A. Internal Equity is Used by Managers to Make Individual Compensation Decisions By Comparing Similarly Performing Employees Who Do Similar Work.**

42. According to Dr. Hallock, the first avenue by which pay could be suppressed for all or nearly all class members pertains to the application of internal equity. Plaintiffs claim that if the pay of one individual rises, that would increase the pay of all other class members because it would be inequitable to raise the pay of one and not others. Therefore, if the pay of one



individual is suppressed, that would suppress the pay of all others for whom pay would have risen. This argument is flawed because it makes use of an outdated notion of internal equity and mischaracterizes the notion of internal equity as it is applied to these Defendants.

43. There are two definitions of internal equity in the management world. In the first definition, labeled distributive justice, pay is perceived to be fair when all are paid the same wage. This form of internal equity might be relevant to traditional firms or to unionized firms where the goal is equal pay for all within an education/tenure class. In the second definition, labeled procedural justice, pay is perceived to be fair when the procedures for setting pay are fair.<sup>16</sup> This form of internal equity is relevant to technology firms that pay for performance, and specifically to Defendants in this case. In these workplaces, pay is perceived to be fair when the firm follows its procedures of paying for performance. The notion of internal equity does not act as a pressure to equalize pay, but is a concept to further the pay for performance philosophy and a means to strive for fairness by establishing fair procedures.

44. Dr. Hallock makes the same point in his report. Hallock ¶ 202 (“[W]orkers will be motivated when their perceived inputs (e.g., effort) match their perceived outputs (e.g., pay). If someone thinks she is being unfairly paid (e.g., others are being paid more for the same perceived effort), she will become uncomfortable and unmotivated.”).<sup>17</sup> In other words, what matters to employees is not distributive justice, but rather procedural justice where fair procedures ensure pay is based on actual performance.<sup>18</sup>

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<sup>16</sup> As a leading text book put it, a “justice principle that has been shown to prevail in many settings, especially where performance varies significantly across individuals, is simple equity. According to the equity principle, individuals ought to be rewarded commensurate with the outcomes they generate, factoring in the inputs – effort, ability, and so on – they brought to bear in performing the task.” (James N. Baron & David M. Kreps, *Strategic Human Resources* 107 (1999)).

<sup>17</sup> The materials that Dr. Hallock relied upon in his report also makes this point. George Milkovich, Jerry Newman & Barry Gerhard, *Compensation* 87 (McGraw-Hill Irwin 2011) (“One group argues that if fair (i.e., sizable) differentials among jobs are not paid, individuals may harbor ill will toward the employer, resist change, change employment if possible, become depressed, and ‘lack that zest and enthusiasm which makes for high efficiency and personal satisfaction in work.’”).

<sup>18</sup> Paul Oyer and Kathryn Shaw, “Reward Systems,” Human Resource Class Notes: Chapter 4 (Spring 2012) (comparing distributive justice and procedural justice in determining pay).

45. The evidence in this case shows that managers are trained to consider internal equity as one factor (among many) to consider when making pay decisions based on individual performance. As discussed above, pay is based on a myriad of factors, including an individual's current and expected future contribution to the firm. Internal equity is considered by *individual managers* in making *individual* employee compensation decisions. In the evidence I have reviewed, internal equity is not discussed as a means of making automatic *company-wide* adjustments to the compensation of groups of employees. Nor have I seen evidence that every inequity needs to be remedied.

46. Moreover, from my experience and based on the evidence in this case, there is no reason that internal equity should impact workers who are doing dissimilar work, such as employees in different jobs, or workers who perform at different levels. At deposition, Dr. Hallock stated repeatedly that whether an impact to one or some employees would cause a raise to others because of internal equity would be dependent on the facts and the comparability of the jobs at issue. At most, he suggested that pay spillover would be limited to similar employees doing similar work. As Dr. Hallock explained:

"Imagine . . . five people are working side by side. They're all *doing roughly the same work*. They're all paid roughly the same way. One of them gets a cold call. That person's wage increases. There is principles of internal equity that would suggest that there is upward pressure on the others." Hallock Dep. 192:2-8.

"If person X doesn't get the job offer, there is [sic] less upward pressure on the wages of the *work crew* if they're *doing similar work*. Because people – there is this idea of internal equity." Hallock Dep. 202:20-23.

"[R]elated to internal equity concerns is the idea that *people doing similar work* would be paid similarly . . . . I don't know if they're doing similar work, but let's assume that they are. So that if one didn't get a raise, there would be less upward pressure on others in the *work group* than if the person did get a raise." Hallock Dep. 203:15-22.

"Employee A in a *work group*, say there are two people doing that job. . . . [T]hey're both *doing very similar jobs*. Internal equity, if that – if one gets a raise because of a cold call, it's certainly possible, because of internal equity that another person would get a raise immediately. . . . If

they're really *identical workers* and they're really *doing the same thing*, it would be surprising to me that there wouldn't be pressure due to – due to equity concerns. If they're really *performing the similar task or identical task* as we were talking about in this case.” Hallock Dep. 240:13-241:7.

“[I]t's possible that when one worker gets a bump due to a cold call and then she negotiates with the firm to increase her wage in the incumbent firm that people near her don't immediately get wage changes. That's certainly possible. But at the same time, internal equity concerns, among other things, would suggest that there is then pressure on the wages of *people doing similar work*.” Hallock Dep. 242:14-21.

47. Take for example the job titles in Plaintiffs' proposed Technical Class at Intel, which includes chemical engineers, technical writers, IT support specialists, semiconductor engineers, and web designers.<sup>19</sup> I am not aware of any evidence in this case, or outside of this case, to suggest that an IT manager who increases compensation of one of his employees would lead to a chemical engineer manager (or semiconductor engineer manager, or technical writer manager) to increase the compensation of his/her employees to maintain internal equity. Appendix E contains the full list of job titles in the Technical Class for each Defendant and the number of managers within each job title from 2008-2009. Appendix E evidences the vast number of jobs at issue in this case, and the large number of managers at each Defendant across jobs and within job titles. I would not expect a manager's consideration of internal equity to impact all or nearly all other employees in different job titles, under the supervision of different managers.

48. Consistent with this, Dr. Hallock first testified during his deposition that he would *not* expect to see any impact from internal equity outside of a particular job title:

Q. And then assuming suppressed wages for some IT support specialists at Intel, how would that impact the compensation of employees in a different job title, let's say mask designer at Intel.

A. Again, you are asking about a narrow – a narrower part of what's going on. So they don't necessarily – it doesn't necessarily have to be the case that the

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<sup>19</sup> 76586DOC001050\_AEO.xls. Appendix F, created based on this document, categorizes Intel's employees in the Technical Class by Job Functions.

impact on those particular workers led to the prediction that there would be suppression because there are multiple avenues. So I think I understand where you are coming from. So you are asking if – so that’s it. It doesn’t necessarily have to be that avenue. It could be another avenue that leads to my prediction.<sup>20</sup> Hallock Dep. 225:1-14.

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A. Have I reached an opinion about whether a negative impact on an employee would – in one job title would necessarily impact those in another job title? I haven’t – again, I haven’t thought about this specific job title to job title thing that you’ve just brought up before carefully and I’d like to think about that. But I certainly haven’t made a general opinion about that.” Hallock Dep. 235:6-13.

49. Dr. Hallock revised his testimony later in the deposition, stating that “it’s possible that propagation happens from job title to job title” due to internal equity. Hallock Dep. 258:11-12. However, Dr. Hallock cites to no evidence to support this job title to job title propagation and simply testified that this “could” occur. Hallock Dep. 258:16-22, 259:9-15, 259:20-22, 261:2-14.

50. I am unaware of any evidence that requires automatic adjustments to compensation across job titles due to internal equity concerns. To the contrary, the evidence regarding each Defendant in Appendix D shows the concept of internal equity was used at the manager level to make decisions about individual compensation, not at the policy level to make changes in pay practices.

51. Dr. Hallock cites to several figures from Defendants’ documents containing guidelines for managers on how to exercise their discretion when giving annual salary increases. *See* Figures 12-15. These figures demonstrate first that managers were advised to give high performers larger salary increases. These figures also show suggested salary increases were dependent on position within a salary range, which is pegged to market conditions. There is no mention of internal equity or any suggestion that pay of one individual is based on the pay of another individual. In other words, employees were **not** paid in relation to each other, but were

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<sup>20</sup> I discuss the “other avenues” in detail below in sections B through D.

paid in relation to the market. For example, Figure 15 is Adobe's [REDACTED]

[REDACTED] Adobe created its salary ranges based on market data.<sup>21</sup> This Figure shows that Adobe's managers were not advised to compensate employees based on what *other employees* in the manager's team (or other teams) are paid. Rather, this Figure shows that Adobe suggested that a manager exercise his/her discretion in making pay determinations based on an individual's performance and his/her position in relation to the market data. [REDACTED]

52. Dr. Hallock testified that internal equity would not necessarily lead to impact for all or nearly all class members:

A. An Adobe employee gets a raise after a cold call from Apple. Comes in, negotiates a higher wage. Yes.

Q. Right. Would you predict that that would then lead to a raise to all or nearly all technical employees?

A. I wouldn't necessarily predict that that alone would do that. . . . So that alone might not do that. So no. Hallock Dep. 189:18-190:2.

53. Based on my experience and the evidence in this case, I do not expect that the concept of internal equity would be a means by which impact on a some employee's compensation would spill over to all or nearly all class members.

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<sup>21</sup> Streeter Dep. 265:25-266:12 (Adobe created ranges based on some spread that corresponded to the 65th percentile of the market for a particular job title.);

<sup>22</sup> Ex. 1855 at 1855.107 containing the "sample distribution matrices" from which Dr. Hallock's Figure 14 is drawn) and 1855.103 (instructing managers to "differentiate by performance level" in determining their employees' compensation); Burmeister Dep. 104:9-14 (Figure 14 is an illustration of how Apple awarded merit salary increases based on individual performance and salary *relative to market* [SRP stands for salary range position and is "in reference to th[e] market midpoint" ].).

<sup>23</sup> Wagner Decl. Ex. A at 11 ([REDACTED]).

**B. Dr. Hallock's Opinion That the Suppression of External Pay Data in One Job Code Could Lead to Spillover is Unsupported.**

54. Dr. Hallock testified that the second avenue by which pay could be suppressed for all or nearly all class members relates to the use of market survey data to benchmark internal compensation. Dr. Hallock states that each Defendant used external market data as benchmarks for internal compensation. Hallock Dep. 223:8-14. Thus, according to Dr. Hallock, if cold calling suppressed the pay of some groups of workers, that lower pay would be reported to the market consultants like Radford and would suppress the pay of the benchmarking data, which in turn would be used to create internal salary ranges. Hallock Dep. 220:18-25. *See also* Hallock ¶ 240.

55. First, it is hard to imagine that the amount of suppressed cold calling is significant enough to make a difference in the market survey results.<sup>24</sup>

56. Moreover, while it is true that most Defendants used external market data to create internal salary ranges,<sup>25</sup> not all Defendants used the same compensation benchmarking data and each benchmarked against a large group of firms far beyond the one, two, or three with which it allegedly had a cold-calling agreement, if it benchmarked against those firms at all.<sup>26</sup>

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<sup>24</sup> Dr. Hallock stated during his deposition that he did not examine whether market data included suppressed wages. Hallock Dep. 216:18-217:22.

<sup>25</sup> Sheehy Dep. 89:9-16 (Pixar uses the [REDACTED] percentile of the market data as the minimum and the [REDACTED] percentile of the market data as the maximum); Otellini Dep. 252:3-4 (Intel "establish[s] the ranges based upon our view of the market..."); Streeter Dep. 265:25-266:12 (Adobe created ranges based on some spread that corresponded to the 65th percentile of the market for a particular job title.); Wagner Decl. ¶¶ 7-8 [REDACTED]; [REDACTED]; Maupin Dep. 148:25-149:12 (Lucasfilm matches job descriptions to relevant market survey data and then assigns a job to a pay range that aligns with the [REDACTED] percentile of the relevant market data for that job); Burmeister Decl. ¶ 4 [REDACTED].

<sup>26</sup> Morris Decl. ¶ 19 (Adobe's salary ranges based on market data from approximately 25 companies); Wagner Decl. ¶¶ 7-8 [REDACTED]; [REDACTED]; Stubblefield Dep. 24:1-8 [REDACTED]; McKell Decl. ¶ 7 [REDACTED]; McKell Dep. 87:22-24, 88:6-20, 89:6-7 [REDACTED]; [REDACTED]; McAdams Decl. ¶ 13 (Pixar requests the "Bay Area" or "Northern California" cut of Radford data, which includes hundreds of companies.); Maupin Decl. ¶¶ 13(iii), 14 (Lucasfilm used data from Croner Games for certain technical jobs, which no Defendant participated in

Further, Pixar and Lucasfilm used the Croner Company survey, which none of the other Defendants used or participated in.<sup>27</sup> Moreover, defendants that relied on the same surveys did not always use the same data slices. Apple, for example, [REDACTED]  
[REDACTED].<sup>28</sup> [REDACTED]  
[REDACTED]<sup>29</sup> Intel generally benchmarked against “outside Silicon Valley” data.<sup>30</sup>

57. Even assuming that there is suppression of pay for the external data in some job codes due to the alleged anticompetitive conduct, this pay suppression would not spill over between job codes. Taking Adobe as an example, every job code at Adobe has a distinct salary range based on market survey data for similar jobs.<sup>31</sup> That is, Adobe used job specific market data, and thus, suppression of market data for one job code would not affect the salary range for other job codes. This is true for other Defendants as well.<sup>32</sup> Thus, suppressed data for one job

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(continued...)

from 2005 to 2011); Burmeister Decl. ¶ 4 (Apple used [REDACTED] a list of peer companies which included approximately twenty other companies, only two of which (Google and Intel) are defendants in this case.).

<sup>27</sup> See, e.g., McAdams Dep. 60:9-13; Ex. 1308 (showing Lucasfilm is the only other defendant that participates in the Croner Animation survey).

<sup>28</sup> Burmeister Dep. 164:18-165:3.

<sup>29</sup> Stubblefield Dep. 24:1-8 [REDACTED]  
[REDACTED]

<sup>30</sup> McKell Decl. ¶¶ 8, 14; see also McKell 181:19-182:13. Appendix G shows that a vast majority of Intel’s employees in the Technical Class were employed outside of silicon Valley.

<sup>31</sup> Streeter Dep. 265:25-266:12 (Adobe created ranges based on some spread that corresponded to the 65th percentile of the market for a particular job title.);

<sup>32</sup> Sheehy Dep. 49:17-20 (Pixar reviews the survey data and determines minimum and maximum pay on a “job-by-job basis.”); Wagner Decl. ¶ 8 [REDACTED];  
[REDACTED]; McKell 87:22-24, 89:6-7 (Intel has very broad salary ranges that are established by grade [i.e., they have one range for all jobs in a particular grade], but also internally benchmarks pay against a smaller, more job-specific range, which it refers to as “pay lines.”); Maupin Dep. 148:25-149:12 (Lucasfilm matches job descriptions to relevant market survey data and then assigns a job to a pay range.).

title would not affect data for another job title, nor would suppressed salary range for one job title affect the salary range for another job title.

58. When Dr. Hallock was asked to consider this fact during his deposition, he was unable to explain how suppressed market compensation data for one job code could affect salary ranges for other job codes. Hallock Dep. 229:11-232, 233:21-235:13. Thus, Dr. Hallock's opinion of impact based on market data is limited to particular job titles.

59. Intel's use of market data provides another good example that any changes in the market would be dealt with on a job title level, rather than at a company level. Intel annually examines whether each of its job codes are being paid relative to the midpoint of the pay line. McKell Dep. 90:20-91:9. For job codes that are below market, Intel gives a special market adjustment ("SMA") budget for managers to use for those specific jobs.<sup>33</sup> McKell Dep. 206:15-18. The types of jobs that receive SMA vary by year and by group, and is limited to jobs where Intel felt its market position was deteriorating. McKell Dep. 92:14-16; 206:12-18. Thus, if the market was moving faster for a particular job, and Intel's market position was deteriorating, Intel could respond with an SMA targeted to those particular jobs.

60. Moreover, Dr. Hallock ignores the fact that a change in salary range does not lead to a change in actual compensation levels for all employees. To the contrary, the testimony of several Defendants' compensation personnel confirmed that individuals' salaries do not automatically move because of changes to the salary ranges.<sup>34</sup> As detailed earlier in the report, individuals' salaries are adjusted by managers based on performance.

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<sup>33</sup> [REDACTED] McKell Dep. 269:6-19. [REDACTED] Dep. 269:6-19.

<sup>34</sup> Arriada-Keiper Dep. 23:24-25 (Adobe: "Q: if the ranges go up do salaries increase? A: No."); *Id.* at 24:4-22 ("it becomes manager's discretion" on whether to raise a sub-minimum salary up to the minimum in the range); Maupin Dep. 94:24-95:8 (stating that, for Lucasfilm, while the market may cause "range structure increases" it does "not directly" lead to individual salary increases because such "salary increases [are] based on their performance"); McAdams Dep. 29:8-10 (Pixar employee offers and salaries are "usually within that salary range."); Burmeister Dep. 55:13-19 ("[Apple] salary ranges are reference points. They're – they're not hard minimums or hard maximums. Those are purely a reference point."); Ex. 391, 76583DOC003753 (Intel's documents show that its employees were permitted to fall below salary ranges.); Wagner Dep. 26:22-25, 29:15-21 ([REDACTED])



61. Similar to Dr. Hallock's first "avenue" of propagation, Dr. Hallock conceded that this second "avenue" need not propagate to all or nearly all class members. Hallock Dep. 227:25-228:13.

**C. Dr. Hallock's Opinion Regarding Market Data For Merit Increase Budgets Is Also Unsupported.**

62. Dr. Hallock states that a third "avenue" that could impact all or nearly all class members is through Defendants' use of market data to benchmark the annual merit increase percentage. Hallock Dep. 230:14-231:8, 249:20-250:4. According to Dr. Hallock, to the extent that Defendants benchmark their merit increases based on market data of other companies' projected merit increase, a suppression of the market data will lead to a suppression of an individual company's merit increase percentage. Dr. Hallock states that the suppression of merit increase percentage could affect all or nearly all class members.

63. I am not aware of any evidence that market data on base salary increase percentages was suppressed, or that suppressed data resulted in impact on all or nearly all class members. Given the vast labor markets at issue in this case, it is hard to imagine as a matter of basic mathematics that the lack of cold calls due to the alleged anti-solicitation agreements would have suppressed the market data.

64. Assuming each Defendant based its merit increase percentage on market data, and further assuming market data was in fact suppressed due to the alleged anticompetitive conduct, this would not lead to the suppression of compensation for all or nearly all class members. Managers at each of the Defendants had discretion (within company suggested guidelines) to allocate the merit increase budget as they saw fit based on their performance evaluations.<sup>35</sup>

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(continued...)

[REDACTED].

<sup>35</sup> Morris Decl. ¶ 22 (Adobe managers "allocated the budget among employees after completing the performance evaluations."); Wagner Dep. 108:19-23 ([REDACTED]).

Therefore, a reduction in the merit increase budget could affect top performers but need not affect all performers.

65. Moreover, evidence from several Defendants indicates that these companies discouraged giving merit increases to lower performing employees. As referenced above, Defendants maintained merit increase guidelines for their managers as a guidepost when making compensation decisions. *See* Hallock's Figures 12-15. For example, Figure 12 to Dr. Hallock's report demonstrates that [REDACTED].<sup>36</sup> Dr. Hallock admitted this during his deposition. Hallock Dep. 276:4-8 ("So there would be workers that on the fringe who have very, very low performance rating or very high in range wouldn't, in that circumstance – their wage wouldn't – wouldn't be affected in that instance.") Thus, to the extent a manager's merit budget would have been higher but for the alleged anti-solicitation agreements, the evidence I have reviewed does not suggest that all or nearly all employees would have received more (or any) merit increase.

(continued...)

[REDACTED]"); Sheehy Dep. 70:24-25 (Pixar managers are "given a salary pool, and they spend that pool on their employees, how they see fit..."); McKell Dep. 101:8-17 [REDACTED].

[REDACTED] Chau Dep. 138:20-140:6 (Lucasfilm managers and executives would make recommendations for individual bonuses and merit increases and Ms. Chau "very seldom" made adjustments.); Stubblefield Dep. 32:14-21 (Intuit managers "make the compensation decisions [and] [i]t's in their discretion to choose how they want to pay."); Burmeister Dep. 47:16-19, 53:23-54:1 (Individual Apple managers were responsible for setting compensation for each employee in their groups.).

<sup>36</sup> See Hallock's Figure 12, where employees with a rating of 3.4 or below may not receive salary increase depending on their pre-adjustment position. Wagner Dep. 109:16-19 (Google's [REDACTED]); LUCAS0062293 (Lucasfilm's "Pay for Performance 2007 Merit Budget Recommendations Executive Review" recommended allocations of salary increase and bonus budgets of "0% for employees rated 'unsatisfactory'" and "0-2% for employees rated 'needs improvement.'"); LUCAS189964 at 69 (document confirms that low performing Lucasfilm employee was not awarded merit increase or bonus); Burmeister Dep. 48:15-23 (Apple managers were not required to give all employees merit salary increases, rather "if an individual wasn't performing well, he or she may not warrant a merit increase."); James Dep. 25:22-25 (Intel has "a philosophy of pay for performance which means that being an average performer in a certain year in a tight budgetary year does not mean you are necessarily going to get an increase."); Stubblefield Decl. Ex. A, at 9 ([REDACTED]); Sheehy Dep. 169:22-170:3 (Pixar employees who were struggling might not get any salary increase); Ex. 1304 PIX00044225-44229 (Pixar's salary increase spreadsheet from 2006 containing raises ranging from 25% to 0%.); Arriada-Keiper Dep. 75:16-18 ([REDACTED]).

**D. Dr. Hallock's Top of the Box Theory Is Incorrect.**

66. According to Dr. Hallock, another way that pay can be lowered for nearly all workers has to do with the “top” workers.<sup>37</sup> Some of the cold calling restrictions were targeted to the high-end top talent, says Dr. Hallock. His theory is that if the “top of the box,” or the compensation for the highest performing employees, was lowered in the presence of cold-calling restrictions, the entire box (or the compensation for the lower performing employees) may be lowered as well.

67. This theory finds no basis in the Defendants’ compensation systems. Nor have I studied compensation systems outside of this case that would support this theory. For Dr. Hallock’s theory to work, when companies increase the compensation for a top performing employee in one job title, the company would have to increase the compensation of lesser performing employees to maintain the same differentials or relative compensation between all employees in that job title. Plus, for Dr. Hallock’s theory to work, the company would then need to look at the compensation of all employees in other job titles, and adjust them upward to maintain the same compensation structure across job titles.

68. Dr. Hallock recognizes his “top of the box” theory works only with respect to an organization where “those at the top of a pay scale help determine the relative gains of those ‘below’ them.” Hallock ¶ 207. There is no such evidence in this case of which I am aware. As discussed above, the documents and testimonies show that pay determinations were left in the hands of individual managers based on their assessment of individual performance. There is no evidence that managers were trained to undertake the rigid approach needed under Dr. Hallock’s theory and automatically move others within their team because the “top” employee’s compensation increased simply to maintain the same relative compensation. For example, when Adobe’s compensation personnel was asked whether Adobe targeted a particular percentage

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<sup>37</sup> Hallock ¶¶ 207, 229, 239.

difference in compensation between [REDACTED]

[REDACTED] Ms. Arriada-Keiper testified: “Not a specific percentage. . . . [M]anagers ultimately have the discretion. Arriada-Keiper Dep. 111:13-25.

69. Moreover, each job title spans many managers. Appendix E shows the number of managers for each job title at each Defendant firm from 2005 to 2009. To give a few examples, in that time period, Adobe’s Computer Scientist Software Developer 3 had 258 managers, Intel’s Component Design Engineer 7 had 1,074 managers, Intel’s Hardware Engineer 7 had 274 managers, and Intuit’s Product Manager had 110 managers. I have not seen any evidence that shows a coordinated, rigid approach across managers within a job title. Furthermore, I have not seen any evidence that this rigid approach would then be applied outside of the job title, and affect other job titles. Such adjustments would be the antithesis to an individualized pay for performance system.<sup>38</sup>

70. During deposition, Dr. Hallock testified that the “box” refers to the salary ranges for a particular job code (that is, the salary maximum makes up the top of the box and the salary minimum makes up the bottom of the box). Hallock Dep. 278:7-279:9. Dr. Hallock appears to contend that but for the alleged conspiracy, employees at the top of the salary range would have received cold calls, would have received a raise, which would cause the box to “grow.” Hallock Report ¶ 229.

71. This theory is inaccurate because, like other companies I am familiar with, Defendants’ salary ranges (or the “boxes”) were based purely on market survey data, not on individual compensation increases within the company.<sup>39</sup> Thus, an individual’s compensation

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<sup>38</sup> Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, Kathryn Shaw, “Reaching for the Stars: Who Pays for Talent in Innovative Industries?”, *Economic Journal*, 2009: 4 (“[F]irms that operate in innovative high payoff product markets will select star workers and will pay stars both higher starting salaries and higher performance pay.”). *Id.* 35 (“The high pay that innovating firms offer top knowledge workers increases the variance of pay in software — both across firms and within firms.”). Edward Lazear and Kathryn Shaw, “Personnel Economics: The Economist’s View of Human Resources,” *Journal of Economic Perspectives*, vol. 21 (4), (Fall 2007): 21 (“[T]he wages of highly skilled ‘star’ workers have grown relative to the typical employee.”).

<sup>39</sup> See, *supra*, footnote 25.

movement within the company does not alter the “box”; the “box” only grows based on market data. Moreover, because the salary ranges (or the “boxes”) are pegged to the market by job, movement of one “box” does not cause another “box” to move.

72. Even assuming the salary ranges would have been higher but for the alleged conspiracy, as explained above, movement of the salary range does not automatically move all individual’s actual compensation. To the contrary, the testimony of several Defendants’ compensation personnel confirmed that individual salaries are not required to fit within the salary ranges nor do salaries automatically move because of changes to the range.<sup>40</sup>

73. Nor does Dr. Hallock’s “top of the box” theory have any application to a number of situations when a firm decides to retain an employee by increasing wages *other* than base salary. For example, Dr. Hallock does not offer an opinion that “top of the box” applies when a firm decides to retain an employee by promoting him to a higher position, or by giving a one-time equity grant or a one-time bonus. Dr. Hallock agrees that if a Defendant gave a retention bonus to retain an employee, it would not give every employee a raise. Hallock Dep. 137:17-21.

## **IX. Conclusion**

Dr. Hallock does not show that a suppression of wages to some employees allegedly caused by the alleged conspiracy would have affected all or nearly all Technical Class members. Based on Defendants’ compensation systems, pay practices, and pay philosophy, I would not expect that a suppression of wages to some employees would affect all or nearly all Technical Class members.




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Kathryn Shaw, Ph.D.  
June 21, 2013

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<sup>40</sup> See, *supra*, footnote 34.

**Reference Guide to Cited Exhibits**

<b>Exhibit</b>	<b>Location in record</b>
76586DOC001050_AEO.xls	Attached as Ex. 24 to the 6/21/13 Decl. of Lin Kahn
Declaration of Daniel McKell	Attached as Ex. 17 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Donna Morris	Attached as Ex. 14 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Frank Wagner	Attached as Ex. 21 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Lori McAdams	Attached as Ex. 23 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Mason Stubblefield	Attached as Ex. 19 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Michelle Maupin	Attached as Ex. 22 to 11/12/12 Brown Decl. ISO Opp.
Declaration of Steven Burmeister	Attached as Ex. 16 to 11/12/12 Brown Decl. ISO Opp.
Excerpts from the Deposition of Alvaro Gonzalo Alvarez	Attached as Ex. 23 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Bob Mansfield	Attached as Ex. 13 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Brian Croll	Attached as Ex. 14 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Chris Galy	Attached as Ex. FF to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Dan Batali	Attached as Ex. 22 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Daniel McKell	Attached as Ex. 8 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Darrin Baja	Attached as Ex. I to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Deborah Conrad	Attached as Ex. 16 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Deborah Streeter	Attached as Ex. 1 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Digby Horner	Attached as Ex. 11 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Donna Morris	Attached as Ex. 6 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of FrankWagner	Attached as Ex. 3 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Jan Van der Voort	Attached as Ex. 19 to the 6/21/13 Decl. of Lin Kahn

Excerpts from the Deposition of Kevin Hallock	Attached to the 6/21/13 Decl. of Christina Brown
Excerpts from the Deposition of Laszlo Bock	Attached as Ex. 15 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Lori Beck	Attached as Ex. 20 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Lori McAdams	Attached as Ex. SS to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Mason Stubblefield	Attached as Ex. 7 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Micheline Chau	Attached as Ex. 10 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Michelle Maupin	Attached as Ex. 5 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Paul Otellini	Attached as Ex. DD to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Renee James	Attached as Ex. AA to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Richard Bechtel	Attached as Ex. J to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Rosemary Arriada-Keiper	Attached as Ex. 9 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Sharon Coker	Attached as Ex. 18 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Sherry Whiteley	Attached as Ex. JJ to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Shona Brown	Attached as Ex. S to 5/10/13 Cisneros Decl. ISO Supp. Class
Excerpts from the Deposition of Stephanie Sheehy	Attached as Ex. 4 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Steven Burmeister	Attached as Ex. 2 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Steven Condiotti	Attached as Ex. 17 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the Deposition of Tim Cook	Attached as Ex. 12 to the 6/21/13 Decl. of Lin Kahn
Excerpts from the March 19, 2013 Deposition of Lynwen Brennan	Attached as Ex. 21 to the 6/21/13 Decl. of Lin Kahn
Exhibit 1158, ADOBE 005661	Attached as Ex. 1158 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1159, ADOBE 019278	Attached as Ex. 1159 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1160, ADOBE 009652	Attached as Ex. 1160 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1304, PIX00044225-44229	Attached as Ex. 27 to the 6/21/13 Decl. of Lin Kahn

Exhibit 1308, Pixar Salary Analysis	Attached as Ex. 1308 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1309, PIX00049648	Attached as Ex. 1309 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1855, Declaration of Steven Burmeister	Attached as Ex. 1855 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 1861, 231APPLE105542	Attached as Ex. 28 to the 6/21/13 Decl. of Lin Kahn
Exhibit 216, ADOBE 050724	Attached as Ex. 216 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 2425, GOOG-HIGH-TECH 00625147	Attached as Ex. 2425 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 2501, ADOBE 009425	Attached as Ex. 2501 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 2739, INTUIT_043560	Attached as Ex. 2739 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 2740, INTUIT_052841	Attached as Ex. 2740 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 391, 76583DOC003888	Attached as Ex. 391 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit 398, 76579DOC005956	Attached as Ex. 398 to 5/10/13 Cisneros Decl. ISO Supp. Class
Exhibit A to the Declaration of Frank Wagner	Attached as Ex. 21 to 11/12/12 Brown Decl. ISO Opp.
Exhibit B to the Declaration of Frank Wagner	Attached as Ex. 21 to 11/12/12 Brown Decl. ISO Opp.
Exhibits to the Declaration of Donna Morris	Attached as Ex. 14 to 11/12/12 Brown Decl. ISO Opp.
INTUIT 018387	Attached as Ex. B to Stubblefield Decl., Ex. 19 to 11/12/12 Brown Decl. ISO Opp.
INTUIT 043603	Attached as Ex. 30 to the 6/21/13 Decl. of Lin Kahn
INTUIT_038812	Attached as Ex. A to Stubblefield Decl., Ex. 19 to 11/12/12 Brown Decl. ISO Opp.
LUCAS00062271	Attached as Ex. 29 to the 6/21/13 Decl. of Lin Kahn
LUCAS00189964-69	Attached as Ex. 26 to the 6/21/13 Decl. of Lin Kahn
LUCAS0062293	Attached as Ex. 25 to the 6/21/13 Decl. of Lin Kahn



**APPENDIX A**CURRICULUM VITAE  
**KATHRYN SHAW****Home**

868 Lathrop Drive  
Palo Alto, CA 94305  
(650) 804-5879 (cell)

[kathryns@gsb.stanford.edu](mailto:kathryns@gsb.stanford.edu)

[http://www.nber.org/cgi-bin/search\\_family2.pl](http://www.nber.org/cgi-bin/search_family2.pl)

**Office**

Graduate School of Business  
Stanford University  
Stanford, CA 94305-5015  
(650) 725-4168  
(650) 725-9932 (fax)

**CURRENT POSITION**

Ernest C. Arbuckle Professor of Economics	2003-present
Graduate School of Business	
Stanford University	

**PREVIOUS ACADEMIC APPOINTMENTS**

Graduate School of Industrial Administration (GSIA)	
Carnegie Mellon University	
Ford Distinguished Research Chair, Professor of Economics	2002-2003
Professor of Economics	1997-2003
Associate Professor of Economics with Tenure	1994-1997
Associate Professor of Economics	1989-1994
Assistant Professor of Economics	1981-1989

**GOVERNMENT APPOINTMENT**

Council of Economic Advisors, Executive Office of the President	
Member (Senate confirmed, June 2000)	1999-2001
Washington, D.C.	

**AFFILIATIONS**

Research Fellow, IZA, Germany	2012- present
Research Associate, National Bureau of Economic Research (NBER)	1995- present
Research Fellow, Center for Economic and Policy Research (CEPR), London	2004-present
Research Fellow, Center for Corporate Performance (CCP), Denmark	2004-present

**EDUCATION**

Harvard University, Ph.D. (Economics)	1981
Occidental College, Los Angeles, California	1976
A.B. (Economics, Mathematics)	

**RESEARCH STATEMENT**

Insider Econometrics: Modeling Management Practices and Productivity, *NBER Reporter*, 2009

<http://www.nber.org/reporter/2009number4/shaw.html>

**HONORS**

Graduate School of Business Trust Faculty Fellow	2011-2012
Fellow, Society of Labor Economists	2008
Graduate School of Business Trust Faculty Fellow	2005-2006
Special Award for Sustained Teaching Excellence, Economics Department, CMU	2003
CMU Business School Teaching Award Commendation	1999, 2000, 2002
Columbia University Best Paper on International Business	2001
Minnesota Award for Best Paper on Employment Institutions	1998
Xerox Research Chair, GSIA, Carnegie Mellon University	1992-1993
CMU Department of Economics Teaching Award	1992
Harvard University Graduate Student Fellowship	1976-1979
Phi Beta Kappa, Magna cum laude, Departmental Honors in Economics,	
4.0 Graduate in Mathematics, Occidental College	1976
Valedictorian, Verdugo Hills High School	1972

**HONORARY LECTURES**

Occidental College 125 <sup>th</sup> Year, Distinguished Alumni Speaker	2012
Distinguished Women in Economics, Washington University	2012
Keynote speaker, Society of Labor Economists	2012
Guest Lecturer, University of Paris, Science P-O, "What Do CEOs Do?"	2009
Adam Smith Lecture, European Labor Economics Association	2008
Keynote Address, Conference on Education, Training and the Evolving Workplace,	2006
TARGET, Vancouver Canada	
Bertha Leigh Memorial Lecture, Washington State University	2005
Sloan Industry Studies, Keynote address, Atlanta	2004
National Defense University, University Address, Washington DC	2004

**OTHER PROFESSIONAL EXPERIENCE**

Carnegie Mellon University	
Heinz School of Public Policy, Carnegie Mellon University, Affiliated Faculty	1996-2003
Department Head, Industrial Management Department	1987-1990
Department Head, Economics Department (Acting)	1989
Board of Governors of the Federal Reserve	Washington, DC
Visiting Economist	1984-1986
Harvard University	Cambridge, Massachusetts
Assistant Head Tutor in Economics	1978-1981
Center for Policy Alternatives	Cambridge, Massachusetts
Massachusetts Institute of Technology	1977-1979
Research Staff Economist	

**EDITOR AND PROFESSIONAL PANEL**

Board Member, Society of Labor Economists	2013-present
Bureau of Labor Statistics, Technical Advisory Committee	2011-present
STEP Board, National Academy of Science	2011-present
Editorial Advisory Board Member, <i>Journal of Economic Perspectives</i>	2008-2010
Outside Review Panel, Hass School of Business, University of California, Berkeley	2009
The Conference Board, Evidence-Based HR Research Working Group	2007-2009
Bennett Award Committee (chair), AEA, CSWEP	2008-2009
Mincer Award Committee, Society of Labor Economists	2006-2008
John Dunlop Award Committee, Labor and Employment Relations Associations	2006-2008
Associate Editor, <i>Review of Economics and Statistics</i>	2003-2011
Editor (Associate), <i>Journal of Labor Economics</i>	1999, 2001- 2008
Outside Review Panel, Management and Strategy, Kellogg School, Northwestern University	2006
Outside Review Panel, Economics Research Department, Chicago Federal Reserve	2005
NSF Advisory Panel	1997-1999, 2001-2003
American Compensation Association, Academic Research Committee	1997-1999, 2001-2003
IRRA, Labor Economics Subsection, co-chair	1996-1999
<i>Journal of Regional Science</i> , Associate Editor	1994-1997

**RESEARCH GRANTS**

Alfred P. Sloan Foundation –

“International Differences in the Business Practices and Productivity of Multinational Firms in Advanced Capitalist Countries” January 2003-2009, \$1,000,000

Role: Principal Investigator (with Richard Freeman)

Alfred P. Sloan Foundation –

“Firms, Workers, and Workforce Quality: Implications for Earnings Inequality and Economic Growth,” January 2003-December 2005, \$90,000, principal investigators John Abowd, John Haltiwanger, Julia Lane

Role: subcontract with Limor Golan to study the software industry

Alfred P. Sloan Foundation – Officers’ Planning Grant

“International Differences in the Business Practices and Productivity of Multinational Firms in Advanced Capitalist Countries” June 2002 – December 2002 \$45,000

Role: Principal Investigator (with Richard Freeman, Martin Feldstein)

Russell Sage Foundation

“The Impact of Workplace and Technological Innovations on the Demand for Less-Skilled Labor,”

August 1999-September 2002, \$300,000

Role: Principal Investigator (with Ann Bartel, Casey Ichniowski)

Alfred P. Sloan Foundation

“The Impact of Human Resource Management Practices in the Steel Industry,” June 1994 - December 2002, \$700,000.

Role: Principal Investigator (with Casey Ichniowski)

National Science Foundation

“The Effects of Participatory Human Resource Management Practices on Productivity and Quality in U.S. and Japanese Firms,” January 1995-April 1999, \$350,000.

Role: Principal Investigator (with Casey Ichniowski)

Department of Labor

“The Impact of HRM Practices on Performance: An International Perspective,” October 1994 - August 1997, \$76,000.

Role: Principal Investigator (with Casey Ichniowski)

National Science Foundation

“The Dynamics of Franchise Contracting,” October 1993 - October 1995, \$98,000.

Role: Principal Investigator (with Francine Lafontaine)

Alfred P. Sloan Foundation

“The Impact of Human Resource Management and Labor Relations Practices in the Global Steel Industry,” June 1991 - June 1994. Award to project I headed, about \$216,000.

Role: Principle investigator for Human Resource Management component.

W.E. Upjohn Institute for Employment Research

“The Changing Distribution of Family Income and Wealth,” January 1991 - June 1992, \$30,000.

Role: Principal Investigator

National Science Foundation

“Empirical Analysis of the Effects of Risk Aversion on the Investment in Human Capital,” June 1987 - January 1989, \$27,000.

Role: Principal Investigator

Social Impact of Information and Robotics Technology

Carnegie Mellon University, supporting work on “Individual Adjustment to Structural Change,” 1983 - 1984, \$20,000.

Role: Principal Investigator

Doctoral Dissertation Grant, US Department of Labor, 1980-1981

## TEACHING EXPERIENCE

### MBA Courses

Contemporary Economic Policy

Stanford University, 2003- present

Making Data Relevant

Data Driven Human Resource Strategy

Managing Talent

Entrepreneurship from the Perspective of Women (pre-term with Garth Saloner)

Human Resource Management Strategy (280, 281, 289)

Productivity and Incentives (with Ed Lazear)

Macroeconomics

Carnegie Mellon University

Internal Strategy of Firms

1981-2003

Topics in Labor Market Analysis

The Changing Global Environment and the Wealth of Nations

### Undergraduate Courses

Managing in the Information Economy

Carnegie Mellon University

Markets, Incentives, and Value

1981-present

Labor Economics

Labor and Manpower

Industrial and Labor Relations  
Intermediate Macroeconomics  
U.S. Labor Policies

Harvard University, 1978-1980

#### Ph.D. Courses

Personnel Economics  
Doctoral Seminar in Labor Economics

Stanford University, 2004-present  
Carnegie Mellon University, 1984

#### Executive Education

GSB Summer Institute (Co-Director)  
Citigroup Executive Program  
Sloan Executive Program  
HR Executive Program  
Alumni Weekend, Events

2004-present

#### STUDENT SUPERVISION

Thesis advisors, Sara Champion (chair), Chris Stanton (chair)  
James Liang, Brianna Cardiff

2006-present

Outside Committee Head, Education Dept, Stanford, Anna Mastri

2006

Outside Committee Head, Economics Dept, Stanford, Kelly Russell

2005

Ph.D. Thesis Chairman – Zili Zhuang, Brent Boning, Jonathon Gant,

Carnegie Mellon University

Linda Christie, Giovanna Prennushi, Mary Ellen Benedict, Renee Fields

1986-2003

#### PUBLICATIONS -- Journal Articles

“A Personnel Economics Approach to Productivity Enhancement,” (with Edward Lazear), *Nordic Economic Policy Review*, 2 (2011)

“Insider Econometrics: A Roadmap with Stops Along the Way,” *Labour Economics*, 2009.

“Reaching for the Stars: Who pays for Talent in Innovative Industries?” (with Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane), *Economic Journal*, 2009.

“Tenure and Output,” (with Edward Lazear), *Labour Economics*, 15 (2008): 710-724.

“Personnel Economics: The Economist’s View of Human Resources,” (with Edward Lazear) *Journal of Economic Perspectives*, 21 (4), (Fall 2007): 91-114.

“How Does Information Technology affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement and Worker Skills,” (with Ann Bartel and Casey Ichniowski), *Quarterly Journal of Economics*, 122 (4), (November 2007): 1721-1758.

“Opportunity Counts: Teams and the Effectiveness of Production Incentives,” (with Brent Boning and Casey Ichniowski), *Journal of Labor Economics* 25 (2007): 613-650.

“Targeting Managerial Control: Evidence from Franchising,” (with Francine Lafontaine), *Rand Journal of Economics* 36 (1) (Spring 2005): 131-150.

“Beyond Incentive Pay: Insiders’ Estimates of the Value of Complementary Human Resource Management Practices,” (with Casey Ichniowski), *Journal of Economic Perspectives*, 17 (1) (Winter 2003): 155-178.

“Social Capital and Organizational Change in High-Involvement and Traditional Work Organizations,” (with Jon Gant and Casey Ichniowski), *Journal of Economics and Management Strategy*, 11 (2) Summer 2002: 289-328.

Industrial Change and Wage Inequality: Evidence from the Steel Industry” (with Patricia Beeson and Lara Shore-Sheppard) *Industrial and Labor Relations Review*, 54 (March 2001): 466-483.

“The Dynamics of Franchise Contracting: Evidence from Panel Data” (with Francine Lafontaine) *Journal of Political Economy*, 107 (October 1999): 1041-1080.

Reprinted in *Empirical Industrial Organization*, Paul Joskow and Michael Waterson, Eds., Cheltenham, UK: Edward Elgar Publishing, Ltd., (forthcoming), and in *The International Library of the New Institutional Economics*, Claude Menard, Ed., UK: Edward Elgar Publishing, Ltd., (forthcoming).

“The Effects of Human Resource Systems on Productivity: An International Comparison of U.S. and Japanese Plants” (with Casey Ichniowski) *Management Science*, 45 (May 1999): 704-722.

“The Effects of Human Resource Management Practices on Productivity” (with Casey Ichniowski and Giovanna Prennushi) *American Economic Review*, 86 (June 1997): 291-313.

Reprinted in *Personnel Economics*, Edward P. Lazear and Robert McNabb, Eds., Cheltenham, UK: Edward Elgar Publishing, Ltd., (forthcoming).

“Pensions and Wage Premia” (with Edward Montgomery) *Economic Inquiry*, 35 (July 1997): 510-522.

“Franchising Growth and Franchiser Entry and Exit in the U.S. Market: Myth and Reality” (with Francine Lafontaine), *Journal of Business Venturing*, Special Issue on Franchising (1997).

“An Empirical Analysis of Risk Aversion and Income Growth,” *Journal of Labor Economics*, 14 (October 1996): 626-653.

“Old Dogs and New Tricks: Determinants of the Adoption of Productivity-Enhancing Work Practices” (with Casey Ichniowski) *Brookings Papers on Economic Activity: Microeconomics* (1995): 1-65.

“The Impact of Pension Benefits on the Distribution of Earned Income” (with Mary Ellen Benedict) *Industrial and Labor Relations Review*, 48 (July 1995): 740-757.

“The Life-Cycle Persistence of Female Labor Supply,” *Journal of Human Resources*, 29 (Spring 1994): 348-378.

“The Distribution of Family Income and Benefits” (with Mary Ellen Benedict) *Ohio Journal of Economics and Politics* (1994).

“Unanticipated Aggregate Disturbances and Tests of the Life-Cycle Consumption Model Using Panel Data” (with Randall Mariger) *Review of Economics and Statistics*, 75 (February 1993): 48-56.

“The Life-Cycle Labor Supply of Married Women and its Implications for Household Income Inequality,” *Economic Inquiry*, 30 (October 1992): 659-672.

“Pensions and Wages: An Hedonic Price Theory Approach” (with Edward Montgomery and Mary Ellen Benedict) *International Economics Review*, 33 (February 1992): 111-128.

“The Effects of Skill Investment on Migration and Industry Change,” *Journal of Regional Science*, 31 (November 1991): 397-416.

“Intertemporal Labor Supply and the Distribution of Family Income,” *Review of Economics and Statistics*, 71 (May 1989): 196-205.

“Life-Cycle Labor Supply with Human Capital Accumulation,” *International Economic Review*, 30 (May 1989): 431-456.

“Wage Variability in the 1970's: Sectoral Shifts or Cyclical Sensitivity?” *Review of Economics and Statistics*, 71 (February 1989): 26-36.

“Disaggregate Estimates of the Real Wage-Employment Relationship” (with Edward Montgomery) *Economic Letters*, 26 (1988): 241-246.

“The Quit Propensity of Married Men,” *Journal of Labor Economics*, 5 (October 1987): 533-560.

“Occupational Change, Employer Change, and the Transferability of Skills,” *Southern Economic Journal*, 54 (January 1987): 702-719.

“Long Term Contracts, Expectations and Wage Inertia” (with Edward Montgomery) *Journal of Monetary Economics*, 16 (September 1985): 209-226.

“A Formulation of the Earnings Function Using the Concept of Occupational Investment,” *Journal of Human Resources*, 19 (Summer 1984): 319-340.

## **PUBLICATIONS -- Articles in Books**

“Insider Econometrics: Empirical Studies of How Management Matters,” (with Casey Ichniowski), *Handbook of Organizational Economic*, editors Robert Gibbons and John Roberts, Princeton University Press, 2013: 263-311.

“Zooming in and Zooming Out: Rethinking the “Conspiracy of Dysfunction” in School District Human Resource Management,” (with Michael DeArmond and Patrick Wright), in Dan Goldhaber and Jane Hannaway, editors, *Creating a New Teaching Profession*, Urban Institute Press, 2009.

“Jobs Online,” (with Alice Nakamura, Emi Nakamura, Richard Freeman, Amanda Pyman), *Studies of Labor Market Intermediation*, Editor, David Autor, University of Chicago, National Bureau of Economic Research, 2009.

“Wage Structure, Wages, and Mobility,” (with Edward Lazear), 2008. *The Structure of Wages: An International Perspective*, Editor Edward Lazear and Kathryn Shaw, University of Chicago, National Bureau of Economic Research, 2009.

“International Differences in the Adoption and Impact of New Information Technologies and New HR Practices: The Valve-Making Industry in the U.S. and U.K.,” (with Ann Bartel, Casey Ichniowski, Ricardo Correa), *International Differences in the Business Practices and Productivity of Firms*, Editors Richard Freeman and Kathryn Shaw, University of Chicago, National Bureau of Economic Research,.

“Wage Structure, Wages, and Mobility: An Overview,” (with Edward Lazear), in Alex Bryson and J.Forth, and Catherine Barber, *Making Linked Employer-Employee Data Relevant to Policy*, DTI Economics Paper, Department of Trade and Industry, London, April 2006:9-27.

“The Value of Innovative HRM Practices,” in eds. Edward Lawler and James O’Toole, *Work in America*. August 2006:227-240.



“The Human Resources Revolution: Is it a Productivity Driver?”, in Adam Jaffe, Josh Lerner, and Scott Stern, *Innovation, Policy and the Economy*, Chicago: University of Chicago, National Bureau of Economic Research, 2003: 69-114.

“New Technology” and Its Impact on the Jobs of High School Educated Workers: A Look Deep Inside Three Manufacturing Industries,” (with Ann Bartel and Casey Ichniowski), in Eileen Appelbaum, Annette Bernhardt, and Richard Murnane, editors, *Low Wage America*, New York: Russell Sage Foundation, 2003: 155-194.

“Technology Shocks and Problem-solving Capacity,” in Donna Ginther and Madeline Zavodny, editors, *Technology, Growth, and the Labor Market*, Boston: Kluwer Academic Publishers, 2003: 235-258.

“By What Means Does Information Technology Affect Employment and Wages?” in Nathalie Greenan, Yannick L’Horty, and Jacques Mairesse, editors, *Productivity, Inequality, and the Digital Economy: A Transatlantic Perspective*, Cambridge: MIT Press, 2002.

“The Incentives of Quality and the Quality of Incentives: Quality Improvement and Incentive Pay for Frontline Workers” (with David Levine) in Robert Cole and Richard Scott, eds., *The Quality Movement in America: Lessons from Theory and Research*, Russell Sage: 367-386.

“TQM Practices and Innovative HRM Practices: New Evidence on Adoption and Effectiveness” (with Casey Ichniowski) in Robert Cole and Richard Scott, eds., *The Quality Movement in America: Lessons from Theory and Research*, Russell Sage, 2000: 347-366.

## BOOKS EDITED

*The Analysis of Firms and Employees: Quantitative and Qualitative Approaches*, Editors Stefan Bender, Julia Lane, Kathryn Shaw, Fredrik Andersson, and Till Von Wachter, University of Chicago Press, National Bureau of Economic Research, 2008.

*The Structure of Wage: An International Comparison*, Editors Edward Lazear and Kathryn Shaw, University of Chicago Press, National Bureau of Economic Research, 2009. (Book listed as Noteworthy Books in Industrial Relations and Labor Economics for 2009, by the Industrial Relations Section, Princeton University.)

*International Differences in the Business Practices and Productivity of Firms*, Editors Richard Freeman and Kathryn Shaw, University of Chicago, National Bureau of Economic Research, 2009.

Co-editor, *Journal of Labor Economics* special issue on “Compensation Strategies” (with George Baker and Abbie Smith, March 2002).

Co-editor, *Journal of Human Resources* special issue on “The Economics of Women and Children” (with Alice Nakamura) 29 (Spring 1994).

## DISCUSSION IN BOOKS

Discussion commentary, *Managing Capital in the New Economy*, edited by Carol Corrado, John Haltiwanger, and Dan Sichel, National Bureau of Economic Research, forthcoming 2003.

Discussion commentary, *The New Relationship: Human Capital in the American Corporation*, edited by Margaret Blair and Thomas Kochan. Washington, D.C., Brookings Institution, 1999.



## BOOK REVIEWS

Review of Harry C. Katz *Shifting Gears: Changing Labor Relations in the US Automobile Industry*, in *Southern Economic Journal*, 53 (October 1986): 299-300.

## PAPERS AND PROCEEDINGS

“Using ‘Insider Econometrics’ to Study Productivity,” *American Economic Association Papers and Proceedings*, 94 (May 2004): 217-223.

“Women’s Contribution to Productivity,” *Regional Review*, Federal Reserve Bank of Boston, 14(3), Q1 2005: 44-48.

“Technology Shocks and Problem-Solving Capacity,” *Economic Review*, Federal Reserve Bank of Atlanta, 2002.

“The Relentless Search for Efficiency in the Workplace” *Proceedings of the 53<sup>rd</sup> Annual Meeting of the National Academy of Arbitrators*, Washington, D.C.: Bureau of National Affairs, forthcoming.

“Getting the Job Done: HRM and the Production Function” (with Jon Gant, Casey Ichniowski), *Industrial Relations Research Association Proceedings*, 1999: 43-52.

"The Adoption of HRM and TQM Practices and Their Effects on Performance in U.S. and Japanese Steel Lines," *Proceedings of the 1997 NSF Design and Manufacturing Grantees Conference*, Seattle, WA, Society of Manufacturing Engineers, 1997: 659-670.

“The Effects of Participatory Human Resource Management Practices on Productivity and Quality in U.S. and Japanese Firms” *Proceedings of the 1996 NSF Design and Manufacturing Grantees Conference*, Dearborn, MI, Society of Manufacturing Engineers, 1996: 613-614.

## WORKING PAPERS

“The Spread of Modern Retail: Implications for Wages,” with Brianna Cardiff and Francine Lafontaine (available December 2012)

“Making Do with Less: Why Productivity is Rising During Recessions,” with Edward Lazear and Christopher Stanton, January 2012.

“The Value of Bosses,” with Edward Lazear and Christopher Stanton, December 2011

“The Teachers Who Leave: Pulled by Opportunity or Pushed by Accountability?” with Sara Champion, September 2011.

“Teachers’ Pay Compression: Leaving for Opportunity?” with Anna Mastri and Sara Champion, Sept 2010.

“Connective Capital as Social Capital: The Value of Problem-Solving Networks for Team Players in Firms,” with Casey Ichniowski, NBER working paper #15619, December 2009.

“Insider Econometrics: Empirical Studies of How Management Matters,” NBER Working Paper no. 15618, December 2009.

“People Management Practices and Productivity,” October 16, 2009

“What do Bosses Do?”, Working Paper, September 2009.

“Wage Compression and Teacher Quality,” with Anna Mastri and Sara Champion, January 2008.

“Talent Sorting and Skill Complementarity Among Software Engineers,” (with Frederik Andersson, Matthew Freedman, John Haltiwanger, Paul Oyer), January 2007.

“Insider Econometrics: A Roadmap to Estimating Models of Organizational Performance” (with Casey Ichniowski), November 2006.

“Connective Capital: Building Problem-Solving Networks Within Firms,” (with Casey Ichniowski), revised April 2005.

“How Does IT Really Affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement and Worker Skills” (with Ann Bartel and Casey Ichniowski), National Bureau of Economic Research Working Paper No. 11773, November 2005.

“Explorer Firms and Star Workers: Investigating the Link Between Product and Human Resource Strategies,” (with Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane), December 2004.

“Technology Shocks and Problem-Solving Capacity,” March 2002.

“Productivity in the New Economy,” (speech) September 2000.

“Innovative Human Resource Practices and Workplace Efficiency,” (speech) July 2000

“Innovative HRM Practices as a Technology Shock: Building “Problem-Solving Capacity” in Production Workers,” for presentation at conference on Technology, Regulation, and Employment, sponsored by CEMFI, Madrid, June 1999.

“The Evolution Towards High-Involvement Organizations: Distinguishing Differences in Workers’ Networks,” (with Jon Gant and Casey Ichniowski), April 1999.

“HRM Practices, Knowledge Capital, and the Changing Access to ‘Good’ Jobs,” June 12, 1998

“Labor Supply, Human Capital Accumulation, and the Changing Distribution of Family Income,” 1996.

“Firm-Specific Fixed Effects in Franchise Contracting: Sources and Implications” (with Francine Lafontaine) December 1995.

“Investment in Industry Skills: Implications for Wage Growth and Worker Displacement,” December 1993.

“Labor Supply and Taxes: Estimates from a Life-Cycle Model Produce a Pessimistic View of Estimation Possibilities,” December 1992.

“Labor Supply and Taxes, 1967-1987” (with Randall Mariger) December 1991.

## REFEREE

*American Economic Review, Canadian Journal of Economics, Eastern Economic Journal, Economic Inquiry, Economic Journal, Economics of Education Review, Industrial Relations, International*

*Economic Review, International Journal of Manpower, Journal of Applied Econometrics, Journal of Economics and Management Strategy, Journal of Financial Economics, Journal of Human Resources, Journal of Labor Economics, Journal of Law and Economics, Journal of Macroeconomics, Journal of Money Credit and Banking, Journal of Political Economy, Journal of Regional Science Management Science, Quarterly Journal of Economics, Review of Economic Studies, Review of Economics and Statistics, Social Science Quarterly, Southern Economic Journal, National Science Foundation*

## **SERVICE ON COMMITTEES**

### **GSB, Stanford University Committees**

University Committee on Faculty Staff Human Resources (2013- present)  
 Data Center Report (2011-12)  
 Management-X Committee (2011-12)  
 Kenya MBA Study Trip (2012)  
 Academic Coordinating Committee (2010-present)  
 Faculty Liaison GSB Student Newspaper (2010- 2011)  
 University Committee on Evaluation of Human Resources (2009-2010)  
 Committee on Faculty Staff Human Resource (2007-2009)  
 Co-Director, Stanford GSB Summer Institute (2004-present)  
 Philippines MBA Study Trip (2006)

### **Carnegie Mellon University Committees**

Budget and Finance Committee (2002-2003 )  
 Chairman, Faculty Senate (1999)  
 Presidential Review Committee: the Social Sciences (1999)  
 University First Year Council (1996-1999)  
 President's Lecture Series Committee, (1998- 1999)  
 Faculty Affairs Council (1996-1998) (Chair, 1996-1997)  
 Vice-Chairman, Faculty Senate (1998-99)  
 Advising Award Committee (Co-chair) (1994-1997)  
 Advisory Committee for the Undergraduate Teaching Center (1992-1998)  
 Advisory Board of the Center of the Study of African Americans (1994-1998)  
 Executive Committee of the Faculty Senate (1996-1997)  
 Committee on Non-Tenured Appointments (1995-1996)  
 Senator for Faculty Senate (1994-1995)  
 University Parking Committee (1994-1995)  
 University Education Council (with new structure) (1993-1995)  
 Committee on Faculty Promotion and Tenure Policy (1993-1994)  
 Graduate Student Luncheon Series (presentation) (1994)  
 Committee on Flexible Rates for Employees (1994)  
 Selection Committee for University Award for Academic Advising (1993-1994)  
 "97 Network" Orientation (1993)  
 Human Relations Commission (1989-1992)  
 Committee on Academic Support Services (1991-1992)  
 H&SS Dean's Search Committee (1991-1992)  
 Committee on Non-tenured Appointments (1990-1992)  
 Ryan Award Committee (1989-1990) (1991-1992)  
 Teaching Center Orientation presentations (1992)  
 Advisory Committee on Family and Work (1989-1991)  
 Retention Committee (1990-1991)  
 Watson Fellowship Committee (1990-1991)  
 Flexible Benefits Advisory Group (1989-1990)

Educational Facilities Committee (1989-1991)  
 Gender Studies Committee, H&SS (1988-1989)  
 H&SS Subcommittee on Internships (1988-1989)  
 Fulbright Committee (1989-1990)  
 University Education Council (1987-1990)  
 Associate Deans Council (1987-1990)

**CMU, Graduate School of Industrial Administration, Committees**

MBA Curriculum Review Committee (2003)  
 GSIA Executive Education Faculty Advisory Board (2003)  
 Faculty MBA Funding Committee (2003)  
 Dean's Advisory Committee (2002- )  
 Engineering/MBA Planning Committee (chair), (2002- )  
 BS/BA Academic Actions Committee (2001- )  
 IM Policy Committee (1987-)  
 Strategy Recruiting Committee, (2001-2002)  
 MBA Curriculum Committee, (2001-2002)  
 Co-organizer CMU- University of Pittsburgh Applied Micro Workshop (1995-1999)  
 Economics Review Committee (1998)  
 Management Game Board (1981-1998, most years)  
 Dean's Advisory Council (1997)  
 Subcommittee on Sabbaticals (1996)  
 GSIA Committee on Women (Chair) (1994-1995)  
 Subcommittee Head, Tracks in IM (1992-1993)  
 IM Curriculum Review Committee (1991-1992)  
 Economics Curriculum Committee (1991-1992)  
 Advisory Committee on Undergraduate Economics (1990-1992)

**Organization of Conferences or Sessions**

Conference Co-Organizer, NBER Personnel and Labor Studies, Summer Institute, July 26-27, 2012  
 Conference Co-Organizer, NBER Personnel and Labor Studies, Summer Institute, July 28-30, 2011  
 Conference Co-Organizer, NBER Personnel and Labor Studies, Summer Institute, July 27-30, 2010  
 Conference Organizer, NBER Personnel and Labor Studies, Summer Institute, July 26-30, 2009  
 Conference Organizer, NBER Personnel and Labor Studies, Summer Institute, July 30-31, 2008  
 Conference Organizer, NBER Personnel and Labor Studies, Summer Institute, July 29-30, 2007  
 Conference Co-Organizer and Sponsor, Conference on Firms and Employers, Ammersee, Germany, September 2006.  
 Conference Organizer, NBER Summer Institute, Personnel Economics, Cambridge, July 28, 2006.  
 Conference Co-Organizer, International Differences in the Business Practices and Productivity of Firms, Stanford University, January 19-20, 2005.  
 Conference Co-Organizer, "21<sup>st</sup> Century Human Resource Management Practices and Their Effects on Firms and Workers," University of Illinois, November 11-12 2005.

## Appendix B

<b><u>Court Documents</u></b>
Declaration of Steven Burmeister in Support of Defendant's Opposition to Plaintiff's Motion for Class Certification and Exhibits
Declaration of Michelle Maupin in Support of Defendant's Opposition to Plaintiff's Motion for Class Certification and Exhibits
Declaration of Lori McAdams in Support of Defendant's Opposition to Plaintiff's Motion for Class Certification and Exhibits
Declaration of Danny McKell in Support of Opposition to Class Certification and Exhibits
Declaration of Donna Morris of Adobe Systems Inc. in Support of Defendant's Opposition to Plaintiff's Motion for Class Certification and Exhibits
Declaration of Mason Stubblefield and Exhibits
Declaration of Frank Wagner in Support of Defendant's Opposition to Plaintiff's Motion for Class Certification and Exhibits
Deposition of Alvaro Gonzalez Alvarez (March 5, 2013)
Deposition of Rosemary Arriada-Keiper (March 28, 2013)
Deposition of Darrin Baja (March 1, 2013)
Deposition of Dan Batali (March 19, 2013)
Deposition of Richard Bechtel (March 7, 2013)
Deposition of Lori Beck (March 8, 2013)
Deposition of Lazlo Bock (March 27, 2013)
Deposition of Lynwen Brennan (March 19, 2013)
Deposition of Shona Brown (January 20, 2013)
Deposition of Steven Burmeister (March 15, 2013)
Deposition of Micheline Chau (February 21, 2013)
Deposition of Sharon Coker (November 1, 2012)
Deposition of Steven Condiotti (March 20, 2013)
Deposition of Deborah Conrad (November 21, 2012)
Deposition of Tim Cook (March 21, 2013)
Deposition of Brian Croll (March 22, 2013)
Deposition of Chris Galy (March 20, 2013)
Deposition of Kevin Hallock (June 7, 2013)
Deposition of Digby Horner (March 1, 2013)
Deposition of Renee James (March 22, 2013)
Deposition of Bob Mansfield (April 11, 2013)
Deposition of Michelle Maupin (February 12, 2013)
Deposition of Lori McAdams (August 2, 2012)

Deposition of Daniel McKell (March 20, 2013)
Deposition of Donna Morris (August 21, 2012)
Deposition of Paul Otellini (January 29, 2013)
Deposition of Stephanie Sheehy (March 5, 2013)
Deposition of Deborah Streeter (April 5, 2013)
Deposition of Mason Stubblefield (March 29, 2013)
Deposition of Jan Van der Voort (February 5, 2013)
Deposition of Frank Wagner (March 7, 2013)
Deposition of Sherry Whiteley (March 14, 2013)
Exhibit 216, ADOBE 050720
Exhibit 391, 76583DOC003750
Exhibit 398, 76579DOC005956
Exhibit 1158, ADOBE 005661
Exhibit 1159, ADOBE 019278
Exhibit 1160, ADOBE 009652
Exhibit 1304, PIX00044225
Exhibit 1308
Exhibit 1309, PIX00049648
Exhibit 1855
Exhibit 1861, 231APPLE105537
Exhibit 2501, ADOBE 009425
Exhibit 2739, INTUIT_043560
Exhibit 2740, INTUIT_052841
Expert Witness Report of Kevin F. Hallock and Citations (May 10, 2013)
Expert Report of Professor Kevin M. Murphy and Exhibits (November 12, 2012)
Order Granting in Part, Denying in Part Motion for Class Certification, <i>In re: High-Tech Employee Antitrust Litigation</i> , Case No. 11-CV-02509-LHK, Dkt. 382, Filed 04/05/2013
Plaintiffs' Consolidated Amended Complaint (filed September 13, 2011)
<b>Academic Papers</b>
Fredrik Andersson, Matthew Freedman, John Haltiwanger, Julia Lane, and Kathryn Shaw, "Reaching for the Stars: Who Pays for Talent in Innovative Industries?", <i>Economic Journal</i> , 2009
James N. Baron & David M. Kreps, <i>Strategic Human Resources</i> (1999)
Kevin F. Hallock, <i>Pay: Why People Earn What They Earn And What You Can Do Now To Make More</i> , 87 (Cambridge Univ. Press 2012)
Casey Ichniowski and Kathryn Shaw, "Beyond Incentive Pay: Insiders' Estimates of the Value of Complementary Human Resource Management Practices," 17 <i>Journal of Economic Perspectives</i> 155, 163–168 (2003)
Casey Ichniowski and Kathryn Shaw, "Insider Econometrics: Empirical Studies of How

Management Matters,” <i>Handbook of Organizational Economic</i> , editors Robert Gibbons and John Roberts, Princeton University Press, 2013
Edward Lazear and Kathryn Shaw, “Personnel Economics: The Economist’s View of Human Resources,” <i>Journal of Economic Perspectives</i> , 21 (4), (Fall 2007)
Thomas Lemieux, W. Bentley MacLeod, and Daniel Parent, “Performance Pay and Wage Inequality,” <i>The Quarterly Journal of Economics</i> (2009)
George Milkovich, Jerry Newman & Barry Gerhard, <i>Compensation</i> , 87 (McGraw
Paul Oyer and Kathryn Shaw, “Reward Systems,” Human Resource Class Notes: Chapter 4 (Spring 2012)
Kathryn Shaw, “Insider Econometrics: A Roadmap with Stops Along the Way,” <i>Labour Economics</i> , 2009
<b><u>Bates Documents</u></b>
76586DOC0001050_AEO.xls
INTUIT_018387
INTUIT_043603
INTUIT_038812
LUCAS00062271
LUCAS00189964
LUCAS0062293
LUCAS189964



## APPENDIX C

The purpose of this appendix is twofold. It is first to provide evidence that the compensation strategy of these Defendants is a pay for performance philosophy. It is second to highlight multiple key human resource management practices that contribute to making it a pay-for-performance environment.

### Adobe

1. Adobe's compensation policy has always been to pay employees based on their performance and expected future contribution to the company. Declaration of Donna Morris ("Morris Decl.") ¶ 6. This is confirmed by deposition testimony as well as internal HR documents. Arriada-Keiper Dep. 68:18-21, 88:15-25, 105:10-13, 105:18-22, 176:22-177:2, 184:14-185:6; Deposition of Deborah Streeter ("Streeter Dep.") 115:5-7; Deposition of Digby Horner ("Horner Dep.") 190:7-12; Deposition of Donna Morris ("Morris Dep.") 117:20-118:1; Morris Decl. Exhibits 1 – 5. Compensation for individual employees were not determined on a company-wide basis, but were determined by managers, who were in the best position to assess each employee's performance. Morris Decl. ¶¶ 7, 9; Arriada-Keiper Dep. 73:9-15, 87:18-88:1; Streeter Dep. 56:11-14. Managers were trained and encouraged to differentiate compensation among employees based on their assessments of individual performance. Morris Decl. ¶¶ 7-18; Arriada-Keiper Dep. 88:13-25, 89:11-90:4, 105:4-13, 175:24-177:2.

2. Specifically, each year, Adobe conducted an annual review during which every employee was evaluated by his/her manager. Morris Decl. ¶ 10; Streeter Dep. 53:15-54:5. Managers were trained to make salary adjustments for their employees based on these performance evaluations within budgetary confines, while taking into consideration each job code's salary range. Morris Decl. ¶¶ 7-18. The salary ranges did not restrict a manager's discretion, but rather served as guide posts. Arriada-Keiper Dep. 69:2-24. Managers could pay, and did pay, above and below the salary ranges. Arriada-Keiper Dep. 69:12-24. Bonuses and equity grants were also based on individual employee performance. Morris Decl. ¶¶ 23-25;



Arriada-Keiper Dep. 208:23-209:16. Moreover, Adobe trained its managers to pay for performance at the hiring stage. A new hire's compensation lies within the discretion of the hiring manager. Arriada-Keiper Dep. 212:23-213:1. Adobe trained its managers that starting salaries should reflect and differentiate an individual's education and skills in comparison to existing employees. Morris Decl. ¶ 32.

### Apple

3. Apple's philosophy is to compensate employees based on their personal job performance and individual contributions to the company. "Apple's general philosophy has been to compensate its employees based on their individual contributions to the company and differences in their job scope, responsibilities, and experience." Declaration of Steven Burmeister ("Burmeister Decl.") ¶ 3; Deposition of Tim Cook ("Cook Dep.") 96:10-11 ("Apple's built on a meritocracy. We pay for performance, and so that's number one, you know, by a long shot."); Deposition of Bob Mansfield ("Mansfield Dep.") 31:1-12. Individual managers were responsible for setting compensation for each employee in their groups. Burmeister Decl. ¶ 7; Burmeister Dep. 47:13-19, 53:23-54:1, 165:25-166:5. Managers were instructed to consider a variety of factors in setting compensation, including each employee's individual contribution to the team as well as his or her education, professional experience, responsibilities, and job scope. Burmeister Dep. 46:8-14, , 48:19-23, 137:23-138:12. Presentations prepared for Apple managers in September 2006 and July 2007 confirm that compensation decisions must be individualized and based on employee performance. Ex. 1855.103 at 231APPLE095048 (training managers to "differentiate by performance level"); Ex. 1861.6 at 231APPLE105542 ("[compensation] [c]hanges must be commensurate with contribution and performance").

4. Each manager at Apple conducted annual or [REDACTED] performance reviews of employees in his or her group. Burmeister Decl. ¶ 7. Managers received budgets for merit salary increases, stock grants, and bonuses, which they had discretion to allocate among employees in their group. Burmeister Decl. ¶¶ 6-7; Burmeister Dep. 58:8-11 [REDACTED]

[REDACTED]; Mansfield Dep. 30:11-19, 35:19-36:23; Ex. 1861.6 at 231APPLE105542 (“Three core compensation elements help motivate employees. Base salary: to stay competitive. Bonus: to reward outstanding achievement. Stock: to invest in long-term motivation and retention.”).

5. Managers were also provided with recommended salary ranges for each job level, but these guidelines served only as a reference point, and were one of many factors that managers were expected to use to determine individual compensation. Burmeister Dep. 46:3-47:7, 55:13-19, 57:11-20 (“Salaries are awarded based on the individual’s performance. . . . Our salary ranges are reference points. They’re – they’re not hard minimums or hard maximums. Those are purely a reference point. But salaries are truly determined based on an individual one-by-one assessment of the individual.”). Managers could and did set individual base salaries above or below the maximum and minimum salary guidelines for an employee’s job level, based on that employee’s yearly performance and contributions to the group. Burmeister Dep. 57:11-20, 69:1-13, 136:20-138:11.

6. As a result, total compensation varied significantly at Apple, even among employees within the same job level. As a manager states, “if you contribute a lot, you’ll get paid well and you’ll be compensated for your contributions. If you don’t contribute as much, you won’t get paid as much as someone who contributes a lot. So it’s really about merit, and if you are a major contributor, you’ll do very, very well at Apple.” Deposition of Brian Croll (“Croll Dep.”) 190:20-191:2.

### Google

7. Google pays its employees [REDACTED]. Declaration of Frank Wagner (“Wagner Decl.”) ¶¶ 4-5; Wagner Decl. Exhibits A & B (Google compensation presentations dated 2007 and 2009); Deposition of Frank Wagner (“Wagner Dep.”) 28:7-16; Deposition of Laszlo Bock (“Bock Dep.”) 48:25-49:4; Deposition of Shona Brown (“Brown Dep.”) 67:24-68:4. [REDACTED]

[REDACTED]  
[REDACTED] Wagner Decl. ¶ 5. [REDACTED]  
[REDACTED]  
[REDACTED] Bock Dep. 48:25-49:4;  
Brown Dep. 68:5-24.

8. Merit-based salary adjustments and promotion salary adjustments are completed annually and are based on an employee's performance during the previous four quarters. Wagner Decl. ¶ 15. [REDACTED]

[REDACTED]  
Wagner Decl. ¶¶ 10, 13. [REDACTED]  
[REDACTED]

[REDACTED] Wagner Decl. ¶ 13. [REDACTED]  
[REDACTED]  
[REDACTED] Wagner Dep. 26:22-25, 27:1-6, 29:15-21;  
Brown Dep. 76:5-14; Wagner Decl ¶ 16.

9. [REDACTED] Wagner Dep. 29:7-9.

10. When bonus and equity are considered, [REDACTED]

[REDACTED] See Wagner Decl. ¶ 30 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED].

11. Compensation at Google has always included equity and bonuses, in addition to salary, [REDACTED]

[REDACTED] Wagner Decl. ¶¶ 26-27; Wagner Dep. 131:9-11. [REDACTED]

[REDACTED]

[REDACTED] Wagner Decl. ¶

27. [REDACTED] Wagner Decl.

¶¶ 17-23. [REDACTED]

[REDACTED]

[REDACTED] Wagner Decl. ¶ 21.

**Intel**

12. Compensation at Intel is based on the individual performance of each employee. Deposition of Deborah Conrad (“Conrad Dep.”) 203:7-8. (“The number one criterion for setting compensation is performance and performance to grade, performance versus peers, and performance versus the market”). Deposition of Renee James (“James Dep.”) 244:21-245:7. Meritocracy is one of the five key tenets of Intel’s total compensation philosophy, and is therefore a high priority for Intel. Deposition of Daniel McKell (“McKell Dep.”) 190:1-3.

13. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

14. [REDACTED]

[REDACTED]

[REDACTED]

15. [REDACTED]

[REDACTED]

16. [REDACTED]

[REDACTED]

**Intuit**

17. Deposition testimony from Intuit witnesses demonstrate Intuit's pay for performance philosophy. As explained by Intuit employee Mason Stubblefield, "[w]e train managers to focus on performance and mak[e] pay decisions based on performance." Deposition of Mason Stubblefield ("Stubblefield Dep.") at 109:20-22. Further, "[w]e don't have any training that focuses on paying anybody the same. All of our focus on training on compensation is paying for performance, and appropriate pay for the person, the skills they bring, and the contribution that they bring." Stubblefield Dep. 111:1-6. Moreover, Intuit employee Sherry Whiteley explained that Intuit is a "pay-for-performance company" which means that managers are taught that Intuit's "highest-rated, highest retention people, when you look at their total

compensation, we need to make sure we are rewarding the right people.” Deposition of Sherry Whiteley (“Whiteley Dep.”) at 36:14-19. In this vein, managers are specifically trained to differentiate among employees. Whiteley Dep. 111:8-12.

18. Intuit does not “seek to achieve pay equity or parity among employees” but rather “managers are instructed to set individual salaries based on each employee’s own circumstances.” Stubblefield Decl. ¶ 10, Ex. 19 to Brown Decl. in Support of Defendants’ Opp. to Plaintiffs’ Mtn for Class Cert., Dkt. No. 215. Intuit trains its managers to differentiate. Exhibit 2739.5 (“[U]nderstanding the fundamentals of total rewards will help you, as a leader, differentiate rewards and recognition . . . linking pay decisions to performance outcomes and business strategy.”).

19. Employees’ pay is reviewed on an annual basis, and increases may be awarded based on performance. *Id.* at 2739.9. *See also* Hallock ¶ 164, Exhibit 2740.2 (“Differentiating Performance for Results . . . Differentiating Pay Decisions for Performance”); 2740.23 (“Differentiate AND Meet the Budget”).

20. Moreover, a person’s role at the company is not determinative of their salary. Whiteley Dep. 38:24–39:11 (“Because we’re in so many different business units, [key or important skills] for one business unit in a point in time it might be strategy leaders, and in another business unit that’s facing big marketing challenges, it could be marketing. But it really is about performance, because we have so many different jobs and roles inside the company.”). Intuit does not have salary ranges. Stubblefield, 131:21 [REDACTED].

### **Lucasfilm**

21. Lucasfilm’s overall compensation philosophy is to pay for performance, a “practice whereby pay is based on differentiated performance at the individual and business unit level.” LUCAS00062271 (Pay for Performance Toolkit for Managers); *see also* Deposition of Steve Condiotti (“Condiotti Dep.”) 163:25-164:4.

22. Performance is an important factor that determines an individual employee’s compensation at Lucasfilm. Deposition of Micheline Chau (“Chau Dep.”) 119:6-15; Deposition

of Sharon Coker (“Coker Dep.”) 253:23-254:1, 261:16-20; Deposition of Michelle Maupin (“Maupin Dep.”) 39:5-11; 95:6-7; *see also* Deposition of Jan Van der Voort (“Van der Voort Dep.”) 19:17-18 (two components of salary determination are performance and competitive market data). For example, Lucasfilm recruiter Lori Beck testified that all of her salary increases were attributed to good performance and she has never been told that her salary increased for any reason other than performance. Deposition of Lori Beck (“Beck Dep.”) 31:1-32:8.

23. Lucasfilm adjusts employee compensation annually based on performance. An individual’s merit (*i.e.* annual salary) increase and bonus is performance-based and determined by the employee’s manager. The Lucasfilm Board of Directors provides managers with overall compensation budgets as well as general guidelines for merit increases and bonuses, which depend on performance ratings (*e.g.* 6% merit increase for employees with a “distinguished” rating), although managers have discretion to deviate from the Board’s guidelines as long as they stay within their overall budget. Chau Dep. 138:7-140:20; *see also* LUCAS189964 at 69 (compensation records showing that the bonuses for certain employees were 140%, 175%, 160%, and 145% of targets, also noting that one employee was not eligible for a merit increase or bonus “due to Needs Improvement rating”). It means that “[h]igher performing employees receive larger pay increases than lower performing employees.” “Each individual is treated differently” in terms of compensation “depending on how [ ] they perform.” Deposition of Lynwen Brennan (“Brennan Dep.”) 166:20-21.

### **Pixar**

24. Pixar believes in a philosophy of pay for performance in its compensation practices. Pixar determines base salary raises based on specific, individual recommendations from employees’ department managers. McAdams Decl. ¶ 21.

25. Salary increases in particular reflect the contribution of the employee. Pixar generally sets the pool for base salary raises at an amount equal to approximately [REDACTED] percent of total salary, but individual managers are given wide discretion to distribute their salary pool among the employees. The determination of each employee’s salary increase generally reflects

the employee's performance, skill and contributions to Pixar. Deposition of Lori McAdams ("McAdams Dep.") 31:2-17; Deposition of Stephanie Sheehy ("Sheehy Dep.") 169:22-170:3 (noting that the "people who were struggling [would probably not receive a █ percent increase]").

26. For example, Dana Batali, Manager of Pixar's RenderMan Team, "ascribe[s] a percentage to each of the members of [his] team according to their performance of the previous year." Deposition of Dana Batali ("Batali Dep.") 43:12-17. Mr. Batali "felt [he] had the discretion [to award more than █ raises], and practiced that discretion regularly." *Id.* at 46:9-47:11.



## APPENDIX D

The purpose of this appendix is to clarify the definition of internal equity as used by each Defendant and to provide examples of its application.

### Adobe

1. At Adobe, the concept of internal equity refers to the act of comparing an individual employee's skills and performance with those of other employees. *See, e.g.*, Arriada-Keiper Dep. 122:9-15; Morris Dep. 148:13-149:8 ("Internal equity is just parity between candidates and employees . . . [it] is about looking at skills and capabilities which are similar," among other factors). Adobe encourages its managers to consider internal equity as one factor when making compensation decisions to ensure that pay is differentiated based on differences in performance and contribution. Arriada-Keiper Dep. 123:19-25; 250:25-251:11; Streeter Dep. 90:1-15; 175:8-13. Thus, the concept of internal equity is applied on an individual basis to differentiate, not at a firm-wide level to equalize compensation. Morris Decl. ¶ 34.

2. The evidence cited by Plaintiffs and Dr. Hallock demonstrates the ways managers considered internal equity when making compensation decisions for individual employees. For example, Dr. Hallock cites to the testimony of Adobe's Senior Vice President of Engineering, Digby Horner, to support his claim that Adobe cared about internal equity. Hallock ¶ 113. But the testimony and evidence shows the concept was applied at the manager level by comparing 10 employees doing similar work (same job code) in deciding the compensation of a specific star employee. Internal equity was not used as a means of adjusting the pay of a group of employees. Horner Dep. 190:15-201:17 ("I want to understand what his performance is relative to that peer community so that I can really, in a data-driven fashion, decide is this guy really a rock star and are we willing to make an exception here because this is an infrequent occurrence . . . it's more about his performance and being able to say, well, what has he done in comparison to some of these other folks, particularly the one on the list here who is a high.").

3. Dr. Hallock also relies on several emails from Donna Morris that contain the phrase internal equity. Similar to Mr. Horner, Ms. Morris considered internal equity when recommending compensation packages for specific individual employees, not as a basis of automatically adjusting the compensation of a group of employees. Exhibit 2501, ADOBE\_009425 (recommending reduction to [REDACTED] base salary increase from 9% to 5% and reduction to [REDACTED] base salary increase from 9% to 7% to align with internal equity); Exhibit 1158, ADOBE\_005661 (recommending compensation offer for a potential new hire, [REDACTED] by comparing him with an existing employee, [REDACTED]); Exhibit 1159, ADOBE\_019278 (recommending promotional compensation packages for [REDACTED] and [REDACTED] based on considerations of the market and internal equity); Exhibit 1160, ADOBE\_009652 (recommending compensation offer for [REDACTED] by, among other things, considering the compensation packages of existing employees). *See also* Arriada-Keiper Dep. 122:14- 123:2 (considering internal equity when deciding the compensation offer for a new hire by comparing expected performance of the new hire with those of existing employees); Exhibit 216 at ADOBE\_050724 (HR document stating internal equity should always be considered when making a counter offer, which is “to be handled on a case by case basis”).

#### Apple

4. At Apple, internal equity is a measure of how individual employees within a particular group are compensated relative to others who share their performance levels and contribution. Baja Dep. 44:2-16; Burmeister Dep. 63:17-21. (“Internal equity means, to me, that what you’re looking at, if you’re looking at compensation, that it’s fair based on the individual’s contribution relative to the other employees in your group, or across your organization, whatever your scope of management is.”)

5. Internal equity is but one of multiple factors that may figure into the decisions of managers in determining the pay of their reports. Burmeister Dep. 64:13-17 (“At Apple, each manager has the latitude to determine what is appropriate to pay an individual . . . for promotional increase. Internal equity may or may not factor into their ultimate decision.”) Apple

was more concerned with rewarding individual performance than making comparisons across employees. Burmeister Dep. 165:25-166:5 (“I would say that Apple, we don’t try to control consistency, that we look at the individual’s merit, scope of responsibility, achievements, background, and they’re always individual decisions.”).

6. The evidence Dr. Hallock cites confirms Apple recruiters were aware of and sometimes considered — as one of many factors — the relative pay of employees with similar experience and job functions when making compensation determinations for new recruits. See Hallock ¶ 120 (“when making an offer to a new hire one of the factors to consider in compensation is internal equity” (citing Deposition of Alvaro “David” Gonzalo Alvarez (“Alvarez Dep.”) 30)), ¶ 122 (noting that looking at what other people were making is “one thing [Apple] would do” when hiring someone onto a team (citing Baja Dep. 43-44)), ¶ 124 (“ ‘we’d want to know why we were paying somebody more coming in than somebody who is, you know, their peer that’s performing at a good level. And there have been circumstances that we’ve done that, but there’s been business reasons for it.’” (quoting Deposition of Richard Bechtel (“Bechtel Dep.”) 44)). When asked if offering higher pay to new hires might create pressure to pay current employees at the same level, Mr. Bechtel responded, “No. No, I wouldn’t say that.” Bechtel Dep. 45:3-15.

7. Many factors other than internal equity are considered in making individual pay decisions. As Apple recruiting manager David Alvarez noted, “Every situation’s very different. Every manager has different methods that they apply in terms of when they bring on people to their groups.” Alvarez Dep. 208:21-210:25.

8. Likewise, former Apple technical recruiter Darrin Baja testified that the compensation of employees in the group for which he was hiring was “one thing” he would consider when making an offer to a candidate. Hallock ¶ 122 (citing Baja Dep. 44:17-24). Mr. Baja continued, however, that a candidate’s offer would also be determined based on her existing compensation as well as “what this individual could bring to the company as a technical contributor.” Baja Dep. 44:25-45:4.

Google

9. Google uses the term internal equity to mean that people of like contributions should be paid at similar compensation levels. Frank Wagner, Google's Director of Compensation, states that internal equity means "Google employees should receive equitable compensation treatment based on their performance, and that therefore there should be variation in compensation for each employee that corresponds to each employee's performance and contribution to the company relative to other employees." Wagner Decl. ¶ 12.

10. However, internal equity is a little used term at Google. Bock Dep. 47:25-48:1. "In the compensation field, people talk about internal equity, which generally means people – you know, pay should be fair across people. [REDACTED]

[REDACTED]

[REDACTED] Bock Dep. 48:2-9. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Bock Dep.

48:25-49:4. He goes on to say, "You know, fairness is commonly taken to mean, you know, well, everything's equally distributed . . . Within Google [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ). Bock Dep. 49:6-19.

11. Consistent with Google's definition of "internal equity," [REDACTED]

[REDACTED]

[REDACTED] See, e.g., Wagner Dep. 184:19-185:21 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ), 29:10-21 [REDACTED]

[REDACTED]  
[REDACTED]); Wagner Decl. Ex. A (“Salary Planning 2007 Presentation to Engineering Managers”) at p. 6 ([REDACTED]

[REDACTED]  
[REDACTED]) and p.13 ([REDACTED]  
[REDACTED]).

**Intel**

12. At Intel, internal equity is used to compare people of similar skill levels and as a check on pay for those individuals. James Dep. 242:20-243:14. It is an extension of the concept of pay for performance and is “[a] set of criteria that we use to in aggregate check between different people in the same grade band across a variety of different metrics, performance, pay, equity.” *Id.* 242:20-243:2.

13. Internal equity is but one of many factors that are evaluated when making pay decisions. When asked “Did you think maintaining at some general level principles of internal equity across the workforce at Intel was an important goal?” the response was “I think internal equity is aspirational. I think it is a guideline that helps you look at, you know, apples and oranges data and give you a sense of what’s going on, but we focus on pay for performance.” James Dep. 244:21-245:3. Managers first and foremost look individually at each employee’s compensation based on performance, and take into account how similarly situated employees are being compensated based on their grade level, performance in that grade level, their skill set, and other factors. Conrad Dep. 203:8-10; McKell Dep. 123:2-124:1, 188:1-4.

14. Deborah Conrad, a Vice President and Intel’s Chief Marketing Officer, testified that she has given hundreds of employees raises over time, but that giving one person in her group a raise has not resulted in her raising the compensation for all the other employees in that group. Conrad Dep. 249:19-250:22.

15. [REDACTED]  
[REDACTED]

[REDACTED]

16. [REDACTED]

[REDACTED]

Intuit

17. [REDACTED]

[REDACTED]

[REDACTED] Whiteley Dep. 103:22-104:3. When Stubblefield was asked to define pay equity, he stated that “[i]t’s looking for that – I think it’s looking for that relationship between pay and performance in that your highest performing employee should likely be one of your highest paid employees.” Stubblefield Dep. 117:3-9; *see also* Deposition of Chris Galy (“Galy Dep.”) 202:17-19. Stubblefield further testified, “All our focus in training on

compensation is paying for performance... We specifically train not to focus on internal equity in paying people the same.” Stubblefield Dep 111: 2-7.

18. As in other companies, Intuit is [REDACTED]

[REDACTED] When Galy was asked, [REDACTED]

[REDACTED] he responded [REDACTED]

[REDACTED] Galy Dep. 202:20-203:1. [REDACTED]

[REDACTED] Galy Dep. 209:18-24.

19. The overwhelming majority of documents after 2005 make it clear that Intuit had transitioned away from the traditional concept of internal equity. In a traditional workplace – such as a union environment – internal equity would mean equal pay for all employees. In a high performance workplace that characterizes the high-tech world, pay equity means paying employees commensurate with their contributions. Intuit documents reflect this transition in the meaning of pay equity. Intuit documents contain the oft-repeated phrase “‘Internal Equity’ is not an objective since talent and markets are not equal.” *See, e.g.*, INTUIT\_043603 (2006), INTUIT\_038812 (2007), INTUIT\_018387 (2009). These documents explain that instead of focusing on internal equity, the focus is on a pay for performance philosophy, and that there should be “Differentiating Performance for Results . . . Differentiating Pay Decisions for Performance.” INTUIT\_038812 at 1, 4.

#### **Lucasfilm**

20. At Lucasfilm, internal equity is an issue in evaluating employees relative to their peers. This definition of equity is evident in the many quotes the Dr. Hallock uses in defining equity. He states that Senior Manager of Compensation, Michelle Maupin was asked “Can you explain the significance of peer relationships in setting compensation at Lucasfilm?” she

answered “The significance is to consider individual employees’ pay within a similar job and pay range using the same type of skill sets to appropriately align those employees relative to their peers and to market.” Hallock ¶ 167.

21. As evident from this past quote, equity is but one factor relevant in setting pay. Employees are compensated based on job level,<sup>41</sup> skill set, and performance—not on what other employees are making. Coker Dep. 246:6-14; Maupin Dep. 166:24-167:6.

22. The notion of internal equity does not affect pay policies instituted by Lucasfilm. These policies reflect many other factors. Plaintiffs’ theory that a compensation increase for one employee would put upward pressure on the entire pay structure and raise salaries for every employee is contrary to the facts regarding compensation at Lucasfilm for several reasons.

23. Since compensation was determined on an individual-by-individual basis and was heavily related to performance, giving a raise to one individual would not affect the overall pay structure or even the pay range to which the individual’s job was assigned. Jan Van der Voort, Lucasfilm’s Chief Administrative officer, testified that Lucasfilm’s salary structure provides a range of salary for a particular pay grade and “what you pay an individual does not have any impact on” the salary range for that job. Van der Voort Dep. 204:22-24. Lucasfilm’s pay structure had wide ranges within salary grades (generally 60%) and then multiple levels of grade within a job family. Michelle Maupin, Lucasfilm’s compensation manager testified that it would be “extremely rare” that internal equity would “require adjusting the pay for higher level employees in the same job family where the pay of the lowest employee in the job family increased” because “in a job family you have typically three to four levels and the lowest level would be three to four levels below, obviously, the senior level.” Maupin Dep. 186:13-21. And, conversely, adjustments to Lucasfilm’s overall salary structure did not have a direct effect on

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<sup>41</sup> The salary range for a job level is determined by benchmarking against relevant external market survey data. Van der Voort Dep. 195:25-196:6; Chau Dep. 32:9-33:15, 124:11-125:23; Maupin Dep. 148:25-149:12.



individual compensation because the pay structure and individual compensation moved independently of one another. *Id.* 94:24-95:8.

### Pixar

24. Dr. Hallock does not cite any Pixar documents in which the phrase internal equity is used, in light of this fact, Dr. Hallock points to evidence that Pixar makes peer-to-peer comparisons. Dr. Hallock cites the deposition testimony of Pixar's Vice President of Human Resources, Lori McAdams. She was asked how Pixar determines the base salary of a new salaried employee and answered: "We look at their experience and education and how we evaluate them against existing employees and—and make them an offer relative to their experience and—and our existing talent." McAdams Dep. 32:12-15. While McAdams' testimony indicates that Pixar takes other employees' salaries, skills and performance into account in setting compensation, the cited testimony as well as other Pixar evidence demonstrates that Pixar is guided much more by an individualized assessment of a particular employee's specific experience, performance and skill level. *Id.* 31:10-17 ("With an existing employee we evaluate performance, . . . contributions to the studio, [and] the number of projects [they've worked on]. . . . And then we look at where they are in the range relative to those things and determine whether they're in the right place . . . given their performance."); *id.* 40:25-41:7; Sheehy Dep. 143:20-24 (noting that Pixar analyzes how employees "are performing all along the spectrum from rock star to struggling"); *id.* 169:22-170:3 (noting that, while most employees receive the standard [REDACTED] percent raise, "people who were struggling [would not receive a [REDACTED] percent increase]"); Batali Dep. Tr. 43:12-17 ("I ascribe a percentage to each of the members of my team according to their performance of the previous year."). *See also* Ex. 1304 (PIX00044225-44229) (a contemporaneous salary increase spreadsheet demonstrating that, in 2006, base salary increases among employees of one Pixar group varied significantly, from as high as 25% to as low as 0%).

25. Second, Dr. Hallock cites an email written by Pixar's Vice President of Software, Howard Look. In the email, Look describes a proposed "leveling matrix" he has developed "to

give [Pixar] a consistent framework for evaluating the expected contribution of [its] software engineers. It also makes it much easier to compare ourselves against the Radford survey.” Ex. 1309 (PIX00049648). Look continues, “[w]e want to send a clear message to these engineers that we value them at least as much as some new hires who are seeing much more competitive offers from other companies.” *Id.* Contrary to Hallock’s claim that the email describes issues related to internal equity, the email underscores that Pixar’s compensation decisions are guided by benchmarking survey comparisons and based on individual employee contributions.

# Appendix E-1

## Manager and Employee Counts by Employers and Titles Technical Class - 2005 - 2009

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
ADOBE		4	4	5	6
ADOBE		15	31	23	49
ADOBE		1	7	1	7
ADOBE		16	28	30	69
ADOBE		14	20	25	37
ADOBE		12	16	16	23
ADOBE		1	3	1	3
ADOBE		3	2	3	3
ADOBE		258	477	546	1,035
ADOBE		238	451	534	1,036
ADOBE		1	1	1	1
ADOBE		2	2	2	2
ADOBE		3	3	3	4
ADOBE		1	1	2	2
ADOBE		4	17	8	27
ADOBE		3	10	4	15
ADOBE		9	11	12	14
ADOBE		17	22	27	34
ADOBE		13	14	17	20
ADOBE		3	2	3	3
ADOBE		6	5	10	15
ADOBE		10	19	20	43
ADOBE		10	9	19	21
ADOBE		33	61	94	159
ADOBE		3	3	5	5
ADOBE			1		2
ADOBE		3	5	4	6
ADOBE		1	1	1	1
ADOBE		4	3	12	12
ADOBE		2	1	2	2
ADOBE		22	32	44	70
ADOBE		12	12	14	17
ADOBE		2	1	2	2
ADOBE		1	1	1	1
ADOBE		2	3	3	5
ADOBE		1	4	2	5
ADOBE			1		3
ADOBE		28	48	40	81
ADOBE		58	106	100	204
ADOBE		65	138	106	288
ADOBE		40	46	60	84
ADOBE		3	2	4	4
ADOBE		13	18	20	40
ADOBE		4	18	8	39
ADOBE		18	18	28	34
ADOBE		10	13	13	19
ADOBE		8	10	13	18
ADOBE		1	1	1	1
ADOBE		2	3	2	3
ADOBE		75	79	143	185
ADOBE		48	44	81	101
ADOBE		1	1	2	3
ADOBE		11	19	13	22
ADOBE		4	6	5	7
ADOBE		3	3	4	4
ADOBE		37	55	77	115
ADOBE		34	42	59	84
ADOBE		26	38	47	75
ADOBE		20	24	32	44
ADOBE		59	74	94	130
ADOBE		93	121	196	292
ADOBE		88	109	189	312
ADOBE		25	29	43	50
ADOBE		53	56	97	119
ADOBE		43	53	98	139
ADOBE		27	20	55	59
ADOBE		1	3	1	3
ADOBE		3	7	6	12
ADOBE		4	5	5	9
ADOBE		6	14	8	18
ADOBE		5	5	5	5
ADOBE		7	11	7	11
ADOBE		1	1	1	1
ADOBE		7	9	8	16

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
ADOBE		4	3	4	6
ADOBE		21	21	24	29
ADOBE		178	274	308	483
ADOBE		2	2	2	2
ADOBE		4	4	7	7
ADOBE		3	7	5	10
ADOBE		2	2	2	2
ADOBE		2	2	2	4
ADOBE		2	2	5	5
ADOBE		57	57	133	179
ADOBE		1	1	1	1
ADOBE		62	86	114	178
ADOBE		3	4	3	5
ADOBE		1	1	1	1
ADOBE		44	49	97	109
ADOBE		89	96	145	174
ADOBE		107	110	209	251
ADOBE		63	50	125	151
ADOBE		1	2	1	2
ADOBE		1	1	1	1
ADOBE		1	1	1	1
ADOBE		1	1	1	1
ADOBE		5	9	8	15
ADOBE		12	30	18	45
ADOBE		3	6	4	8
ADOBE		86	78	189	246
ADOBE		205	366	485	1,044
ADOBE		4	5	4	7
ADOBE		2	1	3	3
ADOBE		2	4	4	6
ADOBE		4	4	5	5
ADOBE		1	1	1	1
ADOBE		21	24	40	52
ADOBE		1	1	1	1
ADOBE		1	1	1	1
ADOBE		5	8	10	14
ADOBE		5	9	7	14
ADOBE		13	14	22	26
ADOBE		1	1	3	3
ADOBE		2	2	2	2
ADOBE		4	3	5	5
ADOBE		1	1	2	2
ADOBE		6	7	12	18
ADOBE		7	12	10	18
ADOBE		89	122	159	265
ADOBE		31	37	70	91
ADOBE		8	6	13	19
ADOBE		12	19	16	32
ADOBE		10	12	14	20
ADOBE		21	47	64	150
ADOBE		13	8	24	24
ADOBE			4		10
ADOBE		3	5	4	12
ADOBE		2	2	2	3
ADOBE		3	11	4	19
ADOBE			1		1
ADOBE		5	6	6	8
ADOBE		2	2	2	2
ADOBE			1		5
ADOBE		9	12	10	13
ADOBE		112	215	231	483
ADOBE		133	314	334	849
ADOBE		76	97	156	240
ADOBE		12	30	18	47
ADOBE		2	4	3	5
ADOBE		4	2	6	7
ADOBE		22	72	42	179
ADOBE		2	2	2	2
ADOBE		12	21	16	29
ADOBE		17	26	24	40
ADOBE		1	1	2	2
ADOBE		2	10	4	16
ADOBE		8	9	9	14
ADOBE		2	4	6	13

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
ADOBE			1		2
ADOBE		1	1	1	1
ADOBE		1	3	1	3
ADOBE		1	1	1	1
ADOBE		1	5	3	11
ADOBE		6	25	8	33
ADOBE		14	28	21	45
ADOBE		11	28	15	41
ADOBE		8	7	13	14
ADOBE		16	19	25	37
ADOBE		1	2	2	4
ADOBE		1	3	2	5
ADOBE		1	1	1	1
ADOBE		10	10	12	18
ADOBE		25	46	32	73
ADOBE		21	45	29	68
ADOBE		4	7	6	9
ADOBE		3	6	6	11
ADOBE		17	18	30	48
ADOBE		4	1	5	5
ADOBE		2	4	3	6
ADOBE		3	4	3	7
ADOBE		4	7	6	9
ADOBE		8	12	13	19
ADOBE		1	1	1	1
ADOBE		1	2	1	2
ADOBE		6	7	7	9
ADOBE		10	12	11	16
ADOBE		4	3	5	5
ADOBE		5	8	5	9
ADOBE		4	3	4	5
APPLE		3	3	3	3
APPLE		2	3	6	10
APPLE		2	5	8	15
APPLE		2	2	3	3
APPLE		4	2	4	4
APPLE		2	1	3	3
APPLE		11	17	15	27
APPLE		27	55	41	75
APPLE		41	103	63	168
APPLE		31	62	52	92
APPLE		4	4	4	5
APPLE		3	1	5	5
APPLE		6	7	11	12
APPLE		10	14	16	25
APPLE		7	14	14	24
APPLE		2	2	2	2
APPLE		4	2	4	4
APPLE		11	10	20	31
APPLE		8	13	16	35
APPLE		7	8	15	30
APPLE		3	4	6	14
APPLE		2	2	5	9
APPLE		1	1	2	2
APPLE		3	2	6	6
APPLE		1	1	5	5
APPLE		2	5	9	14
APPLE		2	6	6	18
APPLE		4	5	8	10
APPLE		3	3	6	8
APPLE		1	1	1	1
APPLE		1	1	1	1
APPLE		5	3	8	9
APPLE		10	15	19	28
APPLE		6	9	11	15
APPLE		3	2	7	7
APPLE		1	1	1	1
APPLE		1	2	1	2
APPLE		1	7	5	12
APPLE		5	15	12	44
APPLE		2	4	5	9
APPLE		1	1	1	1
APPLE		3	5	7	8
APPLE		2	1	5	5

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
APPLE		2	3	4	6
APPLE		2	1	4	4
APPLE		1	1	2	2
APPLE		7	10	11	16
APPLE		6	10	12	24
APPLE		7	7	14	21
APPLE		2	2	4	4
APPLE		13	17	15	19
APPLE		20	43	29	51
APPLE		22	54	37	76
APPLE		18	31	29	40
APPLE		3	4	3	4
APPLE		2	1	2	2
APPLE		4	8	7	10
APPLE		12	10	15	17
APPLE		4	3	7	7
APPLE		2	1	2	2
APPLE		6	12	21	40
APPLE		6	3	10	10
APPLE		3	2	4	4
APPLE		2	7	5	15
APPLE		6	15	12	33
APPLE		5	12	11	29
APPLE		1	1	1	1
APPLE		2	2	4	4
APPLE		1	1	3	3
APPLE		4	6	7	7
APPLE		33	39	54	78
APPLE		51	79	97	170
APPLE		59	92	126	216
APPLE		40	54	93	149
APPLE		7	6	11	11
APPLE		7	5	11	16
APPLE		13	24	22	36
APPLE		28	36	54	90
APPLE		10	9	16	18
APPLE		2	2	2	2
APPLE		1	1	1	1
APPLE		13	17	24	34
APPLE		3	2	3	3
APPLE		14	15	17	18
APPLE		1	1	1	1
APPLE		4	4	4	4
APPLE		181	331	407	775
APPLE		81	119	146	231
APPLE		9	10	14	17
APPLE		2	1	2	2
APPLE		7	10	14	20
APPLE		6	5	9	9
APPLE		1	1	2	2
APPLE		2	1	5	5
APPLE		1	1	1	1
APPLE		3	2	5	5
APPLE		2	2	4	4
APPLE		2	1	3	3
APPLE		1	1	2	2
APPLE		14	15	22	24
APPLE		24	24	37	53
APPLE		11	10	21	25
APPLE		13	9	26	27
APPLE		20	39	40	61
APPLE		38	52	70	101
APPLE		39	45	79	101
APPLE		6	4	9	10
APPLE		1	1	1	1
APPLE		2	2	4	4
APPLE		57	65	96	116
APPLE		135	216	269	438
APPLE		13	18	14	19
APPLE		3	3	3	3
APPLE		8	9	8	9
APPLE		16	22	16	22
APPLE		5	4	7	7
APPLE		16	28	26	57

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
APPLE		16	26	28	69
APPLE		6	5	9	10
APPLE		3	3	3	3
APPLE		11	12	16	22
APPLE		11	10	14	18
APPLE		2	1	2	2
APPLE		1	1	4	4
APPLE		1	1	1	1
APPLE		1	2	5	10
APPLE		4	5	9	11
APPLE		2	2	4	4
APPLE		1	2	4	8
APPLE		1	1	1	1
APPLE		2	8	4	14
APPLE		1	1	2	2
APPLE		3	3	4	5
APPLE		2	1	4	4
APPLE		2	2	3	3
APPLE		9	14	16	21
APPLE		17	38	33	77
APPLE		19	35	42	73
APPLE		10	16	19	38
APPLE		4	5	9	10
APPLE		1	1	1	1
APPLE		6	5	8	9
APPLE		13	17	29	42
APPLE		29	42	57	87
APPLE		23	32	40	71
APPLE		1	1	1	1
APPLE		3	3	4	4
APPLE		8	14	14	24
APPLE		10	27	25	75
APPLE		6	5	12	13
APPLE		4	4	5	7
APPLE		5	4	9	10
APPLE		23	28	41	51
APPLE		35	60	62	126
APPLE		42	57	77	126
APPLE		21	28	48	63
APPLE		1	1	1	1
APPLE		13	14	20	26
APPLE		15	12	26	30
APPLE		4	8	10	17
APPLE		4	5	10	11
APPLE		6	5	9	9
APPLE		2	2	2	2
APPLE		3	4	7	7
APPLE		8	10	15	20
APPLE		19	41	39	83
APPLE		18	28	31	54
APPLE		6	9	11	15
APPLE		1	1	4	4
APPLE		3	2	4	4
APPLE		2	3	4	8
APPLE		2	3	4	12
APPLE		1	1	1	1
APPLE		1	1	2	2
APPLE		1	3	5	11
APPLE		2	8	7	25
APPLE		1	3	5	12
APPLE		1	1	1	1
APPLE		8	8	12	21
APPLE		33	52	74	119
APPLE		36	58	89	149
APPLE		34	47	89	135
APPLE		1	1	5	5
APPLE		1	1	5	5
APPLE		1	1	2	2
APPLE		4	9	8	19
APPLE		5	6	9	11
APPLE		2	3	5	5
APPLE		2	2	3	3
APPLE		1	1	3	3
APPLE		1	1	3	3

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
APPLE		2	2	4	4
APPLE		1	1	2	2
APPLE		2	1	2	2
APPLE		7	8	11	11
APPLE		31	51	54	124
APPLE		27	61	61	133
APPLE		18	24	40	56
APPLE		2	2	2	2
APPLE		1	1	3	3
APPLE		16	21	29	38
APPLE		42	81	93	166
APPLE		25	34	44	55
APPLE		1	1	1	1
APPLE		3	8	6	12
APPLE		7	32	15	58
APPLE		10	18	18	34
APPLE		1	1	3	3
APPLE		1	1	3	3
APPLE		1	1	1	1
APPLE		3	2	5	5
APPLE		4	2	5	5
APPLE		19	24	33	46
APPLE		21	27	41	58
APPLE		29	44	53	97
APPLE		15	19	35	45
APPLE		1	2	3	4
APPLE		2	2	3	3
APPLE		8	9	14	15
APPLE		9	12	15	20
APPLE		4	8	10	21
APPLE		2	2	3	6
APPLE		6	5	8	10
APPLE		10	13	20	38
APPLE		13	30	26	76
APPLE		6	11	9	18
APPLE		1	1	2	2
APPLE		1	1	2	2
APPLE		2	1	3	3
APPLE		2	3	4	5
APPLE		2	4	5	9
APPLE		2	2	4	4
APPLE		2	5	4	7
APPLE		4	11	9	27
APPLE		1	1	2	2
APPLE		1	3	2	6
APPLE		2	4	6	11
APPLE		1	3	3	5
APPLE		1	6	5	13
APPLE		1	10	5	26
APPLE		1	4	5	14
APPLE		4	3	6	6
APPLE		15	25	30	40
APPLE		35	86	65	143
APPLE		42	87	86	161
APPLE		26	40	41	60
APPLE		3	3	4	4
APPLE		4	9	9	17
APPLE		9	17	17	30
APPLE		11	15	21	32
APPLE		7	12	17	26
APPLE		2	2	4	4
APPLE		5	4	13	13
APPLE		2	1	3	3
APPLE		1	1	1	1
APPLE		6	4	9	11
APPLE		2	1	4	4
APPLE		3	2	4	4
APPLE		3	8	3	10
APPLE		14	12	25	28
APPLE		23	36	49	81
APPLE		4	6	7	12
APPLE		5	4	7	7
APPLE		5	3	6	6
APPLE		15	17	21	36



**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
APPLE		6	6	9	11
APPLE		2	2	2	2
APPLE		5	2	5	5
APPLE		15	17	27	43
APPLE		28	51	49	97
APPLE		9	7	15	22
APPLE		2	2	2	2
APPLE		2	3	2	4
APPLE		9	9	12	14
APPLE		7	8	10	12
APPLE		2	1	2	2
APPLE		1	1	1	1
APPLE		2	2	2	2
APPLE		4	4	5	7
APPLE		5	4	7	7
APPLE		1	1	3	3
APPLE		1	1	1	1
APPLE		2	2	10	10
APPLE		4	8	9	16
APPLE		8	16	20	41
APPLE		10	14	22	35
APPLE		2	2	4	4
APPLE		3	4	6	7
APPLE		1	2	5	10
APPLE		1	1	1	1
APPLE		3	5	5	7
APPLE		2	4	4	7
APPLE		1	1	1	1
APPLE		8	7	10	10
APPLE		10	10	15	19
APPLE		12	12	17	18
APPLE		8	6	11	13
APPLE		5	5	5	5
APPLE		16	17	22	22
APPLE		62	91	101	135
APPLE		132	239	279	529
APPLE		141	325	320	809
APPLE		90	113	186	286
APPLE		14	9	34	36
APPLE		12	9	20	21
APPLE		29	34	50	63
APPLE		57	83	118	199
APPLE		64	115	148	309
APPLE		41	64	94	176
APPLE		3	8	10	17
APPLE		1	1	1	1
APPLE		1	1	1	1
APPLE		1	1	1	1
APPLE		21	30	37	42
APPLE		86	242	228	572
APPLE		106	314	280	761
APPLE		79	130	182	317
APPLE		11	16	19	27
APPLE		1	2	2	4
APPLE		2	6	2	11
APPLE		1	3	1	3
APPLE		1	2	1	2
APPLE		10	6	11	15
APPLE		5	4	6	6
APPLE		14	13	21	30
APPLE		2	1	3	3
APPLE		2	2	2	2
APPLE		1	1	2	2
APPLE		3	6	6	10
APPLE		6	14	26	42
APPLE		7	20	26	73
APPLE		2	1	4	4
APPLE		3	3	3	3
APPLE		60	76	77	87
APPLE		192	409	389	729
APPLE		272	694	684	1,643
APPLE		243	575	582	1,500
APPLE		120	140	271	391
APPLE		22	19	38	39

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
APPLE		47	69	82	113
APPLE		75	165	205	365
APPLE		54	106	153	275
APPLE		22	28	50	61
APPLE		1	1	2	2
APPLE		5	7	10	11
APPLE		21	32	47	78
APPLE		30	36	49	58
APPLE		47	64	91	141
APPLE		42	65	99	177
APPLE		6	8	19	24
APPLE		22	34	46	85
APPLE		5	4	7	7
APPLE		20	23	35	50
APPLE		20	22	32	45
APPLE		10	18	26	43
APPLE		3	2	6	6
APPLE		38	63	86	163
APPLE		36	47	79	130
APPLE		17	13	33	33
APPLE		3	2	3	3
APPLE		1	1	1	1
APPLE		4	2	6	6
APPLE		9	13	20	35
APPLE		10	16	27	35
APPLE		9	14	24	35
APPLE		3	2	7	7
APPLE		1	1	4	4
APPLE		3	3	7	8
APPLE		33	97	87	272
APPLE		3	4	9	14
APPLE		7	9	11	13
APPLE		12	28	31	95
APPLE		2	1	4	4
APPLE		1	1	1	1
APPLE		1	1	1	1
APPLE		4	2	6	6
APPLE		10	10	16	21
APPLE		17	24	43	55
APPLE		13	41	35	96
APPLE		6	11	10	18
APPLE		1	1	1	1
APPLE		1	1	4	4
APPLE		8	14	21	29
APPLE		4	7	8	22
APPLE		2	1	5	5
APPLE		3	1	4	4
APPLE		4	6	5	7
APPLE		8	7	19	19
APPLE		1	1	4	4
APPLE		2	4	3	5
APPLE		10	16	18	35
APPLE		14	27	36	66
APPLE		12	34	42	100
APPLE		7	14	24	52
APPLE		1	1	1	1
APPLE		4	4	13	13
APPLE		9	7	18	20
APPLE		2	2	5	5
APPLE		1	1	5	5
APPLE		2	2	5	5
APPLE		1	1	5	5
APPLE		1	1	1	1
APPLE		1	1	3	3
APPLE		1	3	5	13
APPLE		3	2	5	5
APPLE		3	3	4	4
APPLE		7	12	21	28
APPLE		5	10	12	22
APPLE		1	2	2	4
APPLE		6	4	8	8
APPLE		5	3	10	10
APPLE		2	1	4	4
APPLE		1	1	5	5

[illegible]

### Manager and Employee Counts by Employers and Titles

[illegible]

### Manager and Employee Counts by Employers and Titles

[illegible]

### Manager and Employee Counts by Employers and Titles

[illegible]

### Manager and Employee Counts by Employers and Titles

[illegible]

[illegible]



**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		3	6	3	6
INTEL		3	3	3	3
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		5	4	5	5
INTEL		4	4	4	4
INTEL		2	2	2	2
INTEL		1	1	1	1
INTEL		55	124	103	251
INTEL		72	207	173	475
INTEL		79	210	182	526
INTEL		72	118	153	285
INTEL		29	32	54	71
INTEL		9	7	14	16
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		12	12	19	24
INTEL		20	30	34	58
INTEL		33	64	63	141
INTEL		44	106	96	287
INTEL		29	55	70	141
INTEL		14	14	32	39
INTEL		3	4	3	4
INTEL		3	5	3	5
INTEL		2	2	2	2
INTEL		5	6	5	6
INTEL		4	6	4	6
INTEL		4	7	4	7
INTEL		3	3	4	4
INTEL		20	15	29	30
INTEL		81	106	121	188
INTEL		117	140	182	266
INTEL		139	219	235	411
INTEL		108	134	169	240
INTEL		49	54	79	97
INTEL		5	2	5	5
INTEL		2	2	2	2
INTEL		3	3	3	3
INTEL		5	6	6	14
INTEL		3	4	4	5
INTEL		2	2	2	2
INTEL		3	3	3	3
INTEL		3	3	3	3
INTEL		8	19	8	19
INTEL		13	24	13	24
INTEL		16	30	16	30
INTEL		19	31	19	31
INTEL		7	8	7	8
INTEL		48	46	69	75
INTEL		1	1	1	1
INTEL		1	1	2	2
INTEL		287	376	502	681
INTEL		805	1,610	1,695	3,688
INTEL		969	1,864	2,142	4,438
INTEL		1,074	2,258	2,557	5,983
INTEL		918	1,711	2,228	4,597
INTEL		604	945	1,451	2,782
INTEL		4	9	9	26
INTEL		2	2	5	5
INTEL		19	23	28	38
INTEL		32	51	57	106
INTEL		59	89	106	234
INTEL		65	149	145	428
INTEL		45	88	103	230
INTEL		23	35	46	98
INTEL		3	5	5	14
INTEL		5	5	6	6
INTEL		12	21	16	32
INTEL		20	32	27	57
INTEL		21	48	33	107
INTEL		4	6	7	12
INTEL		3	7	5	11
INTEL		5	4	6	6
INTEL		7	11	10	23

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	2	3	3
INTEL		2	2	2	2
INTEL		7	8	11	12
INTEL		14	12	18	23
INTEL		47	51	76	114
INTEL		69	76	120	199
INTEL		24	19	45	61
INTEL		22	18	31	38
INTEL		21	24	26	46
INTEL		33	36	50	78
INTEL		34	43	56	102
INTEL		8	9	15	16
INTEL		2	2	2	2
INTEL		3	5	4	6
INTEL		4	5	4	5
INTEL		4	5	5	6
INTEL		2	2	2	2
INTEL		8	9	8	9
INTEL		12	18	12	18
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		3	2	7	8
INTEL		1	2	1	2
INTEL		3	5	4	10
INTEL		4	10	5	14
INTEL		6	7	9	15
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		10	7	13	16
INTEL		8	8	10	16
INTEL		3	3	3	3
INTEL		18	18	25	28
INTEL		34	39	42	48
INTEL		31	30	41	43
INTEL		41	41	63	72
INTEL		39	34	58	65
INTEL		20	18	33	38
INTEL		1	2	1	2
INTEL		3	3	4	4
INTEL		16	24	29	47
INTEL		1	1	1	1
INTEL		433	653	1,007	1,835
INTEL		149	237	388	712
INTEL		42	48	91	141
INTEL		8	8	21	25
INTEL		2	2	2	2
INTEL		11	13	17	22
INTEL		67	70	88	110
INTEL		338	506	602	965
INTEL		627	988	1,285	2,201
INTEL		729	1,140	1,594	2,801
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		73	156	187	457
INTEL		24	47	78	143
INTEL		6	23	21	77
INTEL		1	1	2	2
INTEL		17	21	28	32
INTEL		79	114	156	210
INTEL		172	297	372	611
INTEL		151	305	355	780
INTEL		1	1	2	2
INTEL		2	2	6	6
INTEL		2	2	6	10
INTEL		1	1	1	1
INTEL		18	15	26	28
INTEL		3	2	6	6
INTEL		2	1	2	2
INTEL		4	4	4	6
INTEL		51	54	70	116
INTEL		85	121	141	303
INTEL		60	83	113	200

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		6	4	8	8
INTEL		19	23	24	35
INTEL		20	19	26	31
INTEL		14	18	17	21
INTEL		10	11	11	13
INTEL		15	15	24	28
INTEL		33	41	72	102
INTEL		37	36	69	95
INTEL		37	50	75	130
INTEL		15	22	37	64
INTEL		3	3	7	7
INTEL		2	2	2	2
INTEL		7	12	7	12
INTEL		6	7	6	7
INTEL		15	21	15	21
INTEL		8	9	8	9
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		5	5	8	8
INTEL		14	17	22	29
INTEL		28	49	58	110
INTEL		37	88	87	253
INTEL		21	22	44	62
INTEL		1	1	2	2
INTEL		1	1	1	1
INTEL		2	3	2	4
INTEL		6	18	12	38
INTEL		7	22	15	46
INTEL		7	9	14	22
INTEL		1	1	3	3
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		2	2	2	2
INTEL		26	34	44	73
INTEL		2	2	2	2
INTEL		2	2	3	3
INTEL		1	1	1	1
INTEL		4	4	6	7
INTEL		4	5	7	9
INTEL		6	3	7	7
INTEL		1	1	2	2
INTEL		4	4	5	5
INTEL		12	15	17	21
INTEL		23	24	35	45
INTEL		23	26	33	44
INTEL		20	36	34	68
INTEL		9	20	17	38
INTEL		3	3	3	3
INTEL		4	6	4	6
INTEL		3	4	3	4
INTEL		3	4	5	11
INTEL		21	21	30	39
INTEL		36	66	58	115
INTEL		46	82	74	150
INTEL		53	113	94	221
INTEL		43	67	75	142
INTEL		27	41	41	79
INTEL		1	1	1	1
INTEL		6	9	6	9
INTEL		5	7	5	7
INTEL		2	3	2	3
INTEL		13	17	20	26
INTEL		2	3	3	4
INTEL		101	117	165	218
INTEL		193	279	362	578
INTEL		240	333	445	724
INTEL		274	374	521	888
INTEL		220	273	429	661
INTEL		125	135	232	339
INTEL		4	3	4	4
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		1	1	1	1

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		1	1	1	1
INTEL		12	8	14	16
INTEL		23	22	31	57
INTEL		27	37	45	78
INTEL		17	19	29	47
INTEL		9	7	13	15
INTEL		5	4	7	10
INTEL		9	7	13	17
INTEL		10	7	13	15
INTEL		6	5	10	10
INTEL		1	1	4	4
INTEL		56	72	95	143
INTEL		113	185	204	395
INTEL		119	166	220	393
INTEL		92	115	170	260
INTEL		29	28	56	62
INTEL		5	4	8	8
INTEL		2	3	4	4
INTEL		4	4	5	5
INTEL		16	23	23	34
INTEL		27	29	42	66
INTEL		28	18	43	45
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		3	3	3	3
INTEL		5	8	6	8
INTEL		4	8	4	8
INTEL		4	4	4	4
INTEL		4	5	6	7
INTEL		22	24	23	28
INTEL		53	70	59	93
INTEL		46	57	50	71
INTEL		20	26	24	35
INTEL		1	1	1	1
INTEL		9	10	13	21
INTEL		1	1	1	1
INTEL		43	47	47	64
INTEL		102	126	115	164
INTEL		143	214	165	300
INTEL		113	180	129	241
INTEL		36	41	41	53
INTEL		4	4	4	4
INTEL		87	136	183	354
INTEL		28	46	57	130
INTEL		8	13	14	37
INTEL		3	3	5	5
INTEL		2	4	2	4
INTEL		9	11	12	16
INTEL		28	37	40	54
INTEL		145	222	246	375
INTEL		242	396	451	819
INTEL		196	318	395	794
INTEL		56	58	131	195
INTEL		2	3	2	3
INTEL		8	13	8	13
INTEL		3	7	3	7
INTEL		4	4	4	4
INTEL		2	3	2	3
INTEL		3	7	3	7
INTEL		2	2	2	2
INTEL		1	1	1	1
INTEL		1	1	2	2
INTEL		49	119	83	232
INTEL		86	152	153	352
INTEL		81	122	150	305
INTEL		36	49	71	118
INTEL		14	11	26	33
INTEL		1	1	1	1
INTEL		3	4	3	4
INTEL		22	36	22	36
INTEL		32	73	32	73
INTEL		28	50	28	50
INTEL		12	14	13	15
INTEL		6	7	6	7

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		2	3	2	3
INTEL		6	6	6	6
INTEL		3	3	3	3
INTEL		39	39	63	79
INTEL		47	71	96	140
INTEL		66	101	132	255
INTEL		58	55	108	145
INTEL		18	16	30	32
INTEL		5	4	10	10
INTEL		1	1	3	3
INTEL		5	6	5	7
INTEL		5	7	9	11
INTEL		3	1	4	4
INTEL		2	2	3	3
INTEL		1	1	1	1
INTEL		8	9	13	16
INTEL		10	8	17	20
INTEL		1	1	1	1
INTEL		2	1	2	2
INTEL		35	31	59	72
INTEL		16	17	27	37
INTEL		3	3	5	6
INTEL		1	1	1	1
INTEL		2	1	2	2
INTEL		4	3	4	4
INTEL		17	14	18	22
INTEL		31	32	36	52
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		1	2	1	2
INTEL		1	1	2	2
INTEL		45	50	84	128
INTEL		111	170	216	417
INTEL		175	312	395	1,020
INTEL		227	385	514	1,497
INTEL		1	1	1	1
INTEL		7	8	14	15
INTEL		8	13	17	22
INTEL		14	32	37	80
INTEL		14	24	30	58
INTEL		5	5	8	10
INTEL		24	24	37	48
INTEL		48	47	69	88
INTEL		77	98	133	224
INTEL		95	104	165	263
INTEL		52	51	89	117
INTEL		18	15	28	30
INTEL		6	4	6	6
INTEL		17	21	33	42
INTEL		22	29	53	65
INTEL		28	42	58	113
INTEL		33	41	66	112
INTEL		4	5	10	12
INTEL		1	1	1	1
INTEL		43	58	54	86
INTEL		100	272	135	464
INTEL		169	391	251	731
INTEL		97	117	150	258
INTEL		91	136	154	253
INTEL		159	329	296	679
INTEL		172	353	327	879
INTEL		90	91	160	234
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		4	8	11	18
INTEL		10	18	22	34
INTEL		11	19	19	44
INTEL		23	27	39	62
INTEL		16	17	28	39
INTEL		11	10	17	26
INTEL		3	3	3	3
INTEL		1	1	3	3

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		25	30	47	67
INTEL		49	107	109	255
INTEL		73	148	149	349
INTEL		90	159	168	363
INTEL		56	86	101	180
INTEL		26	33	47	69
INTEL		19	24	29	52
INTEL		42	61	75	155
INTEL		62	87	117	252
INTEL		45	78	106	225
INTEL		20	36	47	118
INTEL		6	8	16	20
INTEL		1	1	2	2
INTEL		1	1	1	1
INTEL		2	8	4	11
INTEL		4	5	5	9
INTEL		10	19	20	47
INTEL		5	7	12	16
INTEL		4	4	7	9
INTEL		5	5	8	8
INTEL		5	4	6	7
INTEL		6	6	6	6
INTEL		8	8	11	12
INTEL		9	9	11	12
INTEL		14	14	17	21
INTEL		8	7	12	12
INTEL		1	1	1	1
INTEL		16	14	22	22
INTEL		5	6	7	9
INTEL		11	11	15	18
INTEL		7	8	10	14
INTEL		11	15	19	28
INTEL		3	3	7	7
INTEL		2	2	3	3
INTEL		1	1	1	1
INTEL		21	26	38	50
INTEL		63	95	108	187
INTEL		60	80	119	178
INTEL		114	259	253	697
INTEL		72	108	149	233
INTEL		20	21	43	52
INTEL		25	23	36	40
INTEL		40	55	60	96
INTEL		50	77	89	168
INTEL		64	90	120	199
INTEL		32	47	53	98
INTEL		23	19	39	46
INTEL		18	17	32	34
INTEL		3	4	6	6
INTEL		1	1	1	1
INTEL		6	6	7	9
INTEL		16	15	25	31
INTEL		38	45	57	83
INTEL		70	91	120	204
INTEL		2	2	2	2
INTEL		3	2	6	7
INTEL		2	2	3	3
INTEL		1	1	1	1
INTEL		1	2	1	2
INTEL		2	4	5	9
INTEL		4	3	6	6
INTEL		4	2	4	4
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		4	2	4	4
INTEL		3	2	3	3
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		4	7	5	9
INTEL		8	5	9	12
INTEL		5	3	7	8
INTEL		1	1	1	1
INTEL		2	1	2	2
INTEL		2	2	2	2

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		6	5	9	11
INTEL		697	816	1,703	2,789
INTEL		206	212	509	715
INTEL		1	1	1	1
INTEL		4	2	4	4
INTEL		2	2	2	2
INTEL		1	1	2	2
INTEL		1	2	1	2
INTEL		255	362	452	682
INTEL		395	826	834	1,794
INTEL		403	725	830	1,669
INTEL		419	656	860	1,585
INTEL		249	277	415	592
INTEL		78	83	143	186
INTEL		2	2	3	3
INTEL		12	20	17	30
INTEL		19	22	24	37
INTEL		16	24	21	40
INTEL		10	12	15	19
INTEL		5	4	5	5
INTEL		6	6	7	7
INTEL		80	86	128	169
INTEL		221	293	421	678
INTEL		272	332	503	768
INTEL		438	1,215	993	2,815
INTEL		275	466	595	1,068
INTEL		97	121	191	278
INTEL		9	7	13	13
INTEL		141	186	246	364
INTEL		265	508	536	1,185
INTEL		254	461	552	1,088
INTEL		269	438	583	1,122
INTEL		199	259	426	693
INTEL		76	90	163	238
INTEL		4	4	8	8
INTEL		1	1	1	1
INTEL		23	36	37	58
INTEL		43	63	73	123
INTEL		42	58	77	114
INTEL		40	46	74	96
INTEL		47	44	63	86
INTEL		20	13	27	27
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		4	4	4	4
INTEL		6	8	6	8
INTEL		1	1	1	1
INTEL		49	55	82	126
INTEL		25	26	51	60
INTEL		6	5	11	11
INTEL		8	9	11	14
INTEL		26	23	31	35
INTEL		62	79	99	151
INTEL		2	3	2	3
INTEL		4	5	4	5
INTEL		22	33	22	33
INTEL		24	34	24	34
INTEL		9	12	9	12
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	2	3	3
INTEL		3	2	4	4
INTEL		5	4	6	7
INTEL		24	38	39	69
INTEL		35	42	50	74
INTEL		17	25	26	43
INTEL		31	23	48	52
INTEL		181	186	337	422
INTEL		18	21	42	63
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		34	30	46	54
INTEL		139	141	212	253
INTEL		349	394	568	821

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		662	832	1,110	1,825
INTEL		734	913	1,334	2,150
INTEL		510	548	972	1,360
INTEL		1	1	2	2
INTEL		2	2	2	2
INTEL		4	4	4	4
INTEL		69	260	128	490
INTEL		66	108	117	211
INTEL		24	48	44	95
INTEL		11	10	17	17
INTEL		31	30	56	61
INTEL		49	43	75	89
INTEL		74	71	115	147
INTEL		48	42	72	97
INTEL		10	8	11	11
INTEL		1	1	2	2
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		3	2	4	4
INTEL		3	3	5	5
INTEL		3	3	4	4
INTEL		8	8	8	8
INTEL		15	18	15	18
INTEL		21	32	21	32
INTEL		28	51	28	51
INTEL		20	29	20	29
INTEL		2	2	2	2
INTEL		3	3	3	3
INTEL		1	2	1	2
INTEL		13	16	22	30
INTEL		45	54	74	105
INTEL		66	70	109	151
INTEL		81	140	162	314
INTEL		78	112	154	270
INTEL		21	24	53	61
INTEL		21	20	32	35
INTEL		7	4	7	7
INTEL		2	2	2	2
INTEL		4	3	5	5
INTEL		8	6	11	11
INTEL		124	204	250	478
INTEL		126	196	271	478
INTEL		1	1	1	1
INTEL		135	189	315	540
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		6	30	14	71
INTEL		5	14	14	32
INTEL		4	7	9	20
INTEL		2	1	3	4
INTEL		6	2	7	7
INTEL		3	3	6	6
INTEL		15	13	22	27
INTEL		14	19	21	47
INTEL		10	12	21	33
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		5	85	14	91
INTEL		11	69	21	79
INTEL		2	2	2	2
INTEL		9	14	17	23
INTEL		11	9	17	17
INTEL		25	37	43	72
INTEL		34	59	66	157
INTEL		42	65	81	168
INTEL		26	36	49	90
INTEL		5	7	11	16
INTEL		12	11	31	43
INTEL		38	29	51	55
INTEL		5	4	6	9
INTEL		282	296	431	562
INTEL		606	959	1,130	2,027
INTEL		832	1,322	1,597	3,069
INTEL		945	1,636	1,954	4,103



**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		784	1,144	1,634	3,032
INTEL		398	520	865	1,412
INTEL		17	18	24	34
INTEL		43	59	67	140
INTEL		37	60	64	139
INTEL		39	38	70	94
INTEL		17	13	24	33
INTEL		7	5	8	9
INTEL		11	16	19	40
INTEL		12	15	20	31
INTEL		5	8	12	14
INTEL		1	1	2	2
INTEL		2	2	3	3
INTEL		21	24	37	44
INTEL		5	5	9	9
INTEL		1	1	2	2
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		3	3	3	3
INTEL		27	35	37	58
INTEL		46	75	89	148
INTEL		68	100	114	207
INTEL		18	17	23	33
INTEL		6	4	8	8
INTEL		1	1	2	2
INTEL		6	5	9	9
INTEL		17	21	27	38
INTEL		1	2	1	2
INTEL		14	12	20	21
INTEL		28	31	39	74
INTEL		22	40	37	75
INTEL		22	34	37	75
INTEL		7	8	11	21
INTEL		3	2	3	3
INTEL		58	68	89	125
INTEL		154	194	260	412
INTEL		1	1		1
INTEL		187	337	335	758
INTEL		200	335	345	799
INTEL		87	94	143	208
INTEL		8	7	9	10
INTEL		11	10	14	19
INTEL		40	45	65	81
INTEL		83	99	132	191
INTEL		112	137	179	287
INTEL		143	176	240	351
INTEL		134	160	237	354
INTEL		92	107	164	244
INTEL		2	4	5	9
INTEL		51	70	77	117
INTEL		107	173	219	386
INTEL		140	320	300	821
INTEL		137	282	313	777
INTEL		83	106	184	283
INTEL		17	20	33	50
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		28	32	40	55
INTEL		49	81	82	159
INTEL		57	88	99	183
INTEL		65	78	98	158
INTEL		38	40	61	85
INTEL		8	10	12	20
INTEL		3	4	3	4
INTEL		12	15	12	15
INTEL		9	13	9	13
INTEL		30	46	30	46
INTEL		17	22	17	22
INTEL		7	8	7	8
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		1	1	1	1
INTEL		1	1	1	1

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		2	1	2	2
INTEL		2	3	2	4
INTEL		9	13	21	33
INTEL		9	15	20	40
INTEL		1	1	2	2
INTEL		4	4	6	6
INTEL		2	2	3	3
INTEL		10	9	12	13
INTEL		18	16	28	29
INTEL		1	1	2	2
INTEL		5	3	7	7
INTEL		19	30	43	70
INTEL		12	15	21	32
INTEL		9	6	11	11
INTEL		2	1	2	2
INTEL		41	35	54	65
INTEL		126	154	194	281
INTEL		229	336	408	754
INTEL		282	404	515	1,015
INTEL		219	269	398	648
INTEL		97	90	170	221
INTEL		32	26	56	62
INTEL		5	5	11	11
INTEL		3	4	3	4
INTEL		24	26	31	38
INTEL		55	85	107	182
INTEL		57	63	101	142
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	2	2	2
INTEL		1	1	2	2
INTEL		2	1	2	2
INTEL		2	2	2	2
INTEL		4	4	5	7
INTEL		5	4	6	7
INTEL		6	6	10	13
INTEL		13	22	24	39
INTEL		18	34	40	89
INTEL		18	34	41	78
INTEL		4	5	8	12
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		2	1	2	2
INTEL		7	5	10	10
INTEL		9	8	11	13
INTEL		5	12	9	22
INTEL		2	2	2	2
INTEL		2	3	2	3
INTEL		4	5	4	5
INTEL		2	2	2	2
INTEL		1	1	1	1
INTEL		22	15	27	33
INTEL		6	5	8	14
INTEL		6	8	8	10
INTEL		25	26	38	47
INTEL		60	65	84	140
INTEL		45	52	66	122
INTEL		18	17	32	40
INTEL		1	1	1	1
INTEL		5	6	5	6
INTEL		14	22	14	22
INTEL		11	21	11	21
INTEL		5	4	8	8
INTEL		6	6	13	15
INTEL		3	3	7	10
INTEL		1	1	3	3
INTEL		31	38	51	61
INTEL		62	76	107	157
INTEL		65	78	117	165
INTEL		56	61	97	132
INTEL		17	19	30	36
INTEL		4	4	8	11
INTEL		1	1	1	1
INTEL		16	15	26	34

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTEL		50	58	87	129
INTEL		68	84	121	174
INTEL		57	152	137	362
INTEL		44	70	95	168
INTEL		16	24	34	65
INTEL		1	1	1	1
INTEL		6	6	8	10
INTEL		15	16	16	24
INTEL		17	16	18	23
INTEL		14	16	18	22
INTEL		2	2	2	2
INTEL		3	2	3	3
INTEL		1	1	1	1
INTEL		3	3	3	3
INTEL		17	13	19	21
INTEL		17	15	18	19
INTEL		27	21	34	39
INTEL		12	11	20	21
INTEL		1	1	1	1
INTEL		1	1	1	1
INTEL		31	27	42	50
INTEL		50	80	101	160
INTEL		1	1	1	1
INTEL		58	103	108	203
INTEL		76	129	150	310
INTEL		51	71	106	181
INTEL		20	22	35	56
INTEL		1	1	1	1
INTEL		1	1	1	1
INTUIT		11	19	19	32
INTUIT		23	34	35	66
INTUIT		109	116	182	296
INTUIT		57	61	78	98
INTUIT		28	22	48	49
INTUIT		1	1	1	1
INTUIT		2	2	6	6
INTUIT		19	51	43	117
INTUIT		4	4	4	5
INTUIT		7	7	10	12
INTUIT		1	1	1	1
INTUIT		16	21	24	43
INTUIT		23	28	41	62
INTUIT		1	1	2	2
INTUIT		6	5	7	9
INTUIT		5	7	7	11
INTUIT		10	8	14	14
INTUIT		3	2	3	3
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		2	1	4	4
INTUIT		24	42	37	74
INTUIT		4	4	4	4
INTUIT		10	7	16	18
INTUIT		2	3	2	3
INTUIT		20	37	28	59
INTUIT		2	5	2	7
INTUIT		42	46	63	78
INTUIT		1	1	1	1
INTUIT		38	54	58	90
INTUIT		3	3	4	4
INTUIT		2	2	3	3
INTUIT		2	1	2	2
INTUIT		3	2	4	4
INTUIT		2	1	3	3
INTUIT		1	1	2	2
INTUIT		5	6	7	10
INTUIT		1	1	1	1
INTUIT		1	1	2	2
INTUIT		1	2	2	2
INTUIT		3	4	3	6
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		5	3	5	5
INTUIT		3	2	3	3

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		2	3	2	5
INTUIT		4	3	4	4
INTUIT		1	1	1	1
INTUIT		68	72	115	150
INTUIT		2	1	2	2
INTUIT		1	1	1	1
INTUIT		2	1	4	4
INTUIT		2	2	2	2
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		2	1	2	2
INTUIT		11	20	17	31
INTUIT		1	1	1	1
INTUIT		6	3	6	7
INTUIT		7	7	8	9
INTUIT		3	5	3	5
INTUIT		7	8	7	8
INTUIT		5	6	6	9
INTUIT		18	29	20	32
INTUIT		1	1	1	1
INTUIT		4	5	4	5
INTUIT		42	48	49	62
INTUIT		9	10	9	10
INTUIT		14	16	16	19
INTUIT		1	1	1	1
INTUIT		3	2	3	3
INTUIT		6	3	8	8
INTUIT		3	3	4	4
INTUIT		82	113	116	193
INTUIT		3	4	3	4
INTUIT		12	16	19	32
INTUIT		58	72	93	144
INTUIT		1	1	1	1
INTUIT		59	83	78	107
INTUIT		12	17	12	17
INTUIT		34	33	43	54
INTUIT		2	2	2	2
INTUIT		24	25	24	28
INTUIT		5	5	5	6
INTUIT		3	2	4	4
INTUIT		5	7	6	7
INTUIT		1	1	1	1
INTUIT		4	2	4	4
INTUIT		63	90	91	165
INTUIT		2	2	3	3
INTUIT		8	8	10	11
INTUIT		57	81	71	110
INTUIT		9	12	12	15
INTUIT		4	2	5	5
INTUIT		41	51	59	87
INTUIT		3	4	6	9
INTUIT		4	3	4	4
INTUIT		4	7	4	7
INTUIT		2	4	3	4
INTUIT		2	4	4	5
INTUIT		6	6	7	8
INTUIT		1	1	1	1
INTUIT		3	2	3	3
INTUIT		1	3	1	3
INTUIT		4	1	4	4
INTUIT		1	1	1	1
INTUIT		3	3	3	3
INTUIT		4	4	5	5
INTUIT		7	7	7	7
INTUIT		2	1	3	3
INTUIT		26	26	31	33
INTUIT		5	5	5	5

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTUIT		5	3	6	7
INTUIT		12	15	12	15
INTUIT		9	7	18	19
INTUIT		4	4	4	4
INTUIT		8	6	10	10
INTUIT		2	1	2	2
INTUIT		1	1	1	1
INTUIT		2	2	2	2
INTUIT		11	15	13	18
INTUIT		110	132	163	232
INTUIT		2	2	2	2
INTUIT		2	2	2	2
INTUIT		1	1	2	2
INTUIT		1	2	1	2
INTUIT		5	9	9	16
INTUIT		2	3	4	6
INTUIT		1	1	1	1
INTUIT		26	26	34	48
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		1	1	1	1
INTUIT		2	2	2	2
INTUIT		3	1	3	3
INTUIT		2	2	4	4
INTUIT		2	5	4	8
INTUIT		1	2	3	5
INTUIT		235	392	396	699
INTUIT		98	176	98	178
INTUIT		9	9	11	14
INTUIT		11	9	13	14
INTUIT		3	4	3	4
INTUIT		86	132	140	251
INTUIT		1	1	1	1
INTUIT		2	2	2	2
INTUIT		5	2	6	6
INTUIT		2	2	2	2
INTUIT		17	52	17	52
INTUIT		15	14	23	28
INTUIT		11	29	26	59
INTUIT		30	34	46	66
INTUIT		9	11	13	18
INTUIT		1	1	1	1
INTUIT		26	32	34	48
INTUIT		18	23	21	30
INTUIT		1	4	2	4
INTUIT		3	5	3	5
INTUIT		9	13	10	19
INTUIT		1	1	1	1
INTUIT		35	40	53	81
INTUIT		2	2	2	2
INTUIT		4	3	4	4
INTUIT		1	1	1	1
INTUIT		2	2	2	2
INTUIT		24	36	24	38
INTUIT		3	5	6	14
INTUIT		1	1	1	1
INTUIT		113	151	187	299
INTUIT		8	16	11	21
INTUIT		34	40	51	99
INTUIT		2	1	2	2
INTUIT		8	10	10	17
INTUIT		340	792	696	1,878
INTUIT		91	176	159	346
INTUIT		34	58	34	58
INTUIT		54	105	54	105
INTUIT		18	31	25	53
INTUIT		59	125	114	219
INTUIT		48	70	75	156
INTUIT		34	33	43	66
INTUIT		23	12	31	33
INTUIT		3	2	4	4
INTUIT		1	1	1	1
INTUIT		6	6	8	11

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
INTUIT		9	8	11	12
INTUIT		8	6	8	8
INTUIT		7	15	7	15
INTUIT		4	6	8	16
INTUIT		20	24	31	44
INTUIT		10	7	13	13
INTUIT		2	2	2	2
INTUIT		6	4	6	7
INTUIT		13	12	19	27
INTUIT		6	12	11	21
INTUIT		245	380	466	922
INTUIT		41	45	62	82
INTUIT		17	22	17	22
INTUIT		35	58	63	127
INTUIT		5	6	9	12
INTUIT		18	15	20	30
INTUIT		8	8	9	10
INTUIT		1	1	2	2
INTUIT		2	2	2	2
INTUIT		3	2	3	3
INTUIT		2	1	2	2
INTUIT		4	5	5	6
INTUIT		2	2	2	3
INTUIT		5	6	5	7
INTUIT		44	74	44	74
INTUIT		7	7	8	10
INTUIT		2	1	2	2
INTUIT		42	81	66	117
INTUIT		10	9	21	26
INTUIT		3	6	4	10
INTUIT		6	6	7	8
INTUIT		3	3	4	4
INTUIT		3	2	3	3
INTUIT		1	1	2	2
INTUIT		5	7	7	9
INTUIT		6	6	10	12
INTUIT		5	7	6	13
INTUIT		2	3	2	3
INTUIT		1	1	1	1
INTUIT		3	4	4	6
INTUIT		1	1	1	1
INTUIT		8	12	10	18
INTUIT		4	5	6	7
INTUIT		6	7	6	7
INTUIT		7	7	11	12
INTUIT		36	39	50	69
INTUIT		1	1	1	1
INTUIT		2	1	2	2
INTUIT		1	1	1	1
INTUIT		17	19	18	24
INTUIT		18	13	26	27
INTUIT		9	11	11	15
INTUIT		7	6	11	13
INTUIT		1	1	1	1
INTUIT		2	7	3	10
INTUIT		9	8	13	15
INTUIT		4	7	4	7
INTUIT		5	5	6	6
INTUIT		11	13	13	24
INTUIT		1	1	2	2
INTUIT		3	2	3	3
INTUIT		24	32	36	53
INTUIT		40	46	62	81
INTUIT		3	3	5	5
INTUIT		1	1	1	1
INTUIT		5	5	5	6
INTUIT		1	1	1	1
INTUIT		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		5	6	10	10
LUCASFILM		6	7	12	14
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		4	7	5	7
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		7	11	14	19
LUCASFILM		15	32	37	67
LUCASFILM		4	8	4	8
LUCASFILM		1	1	2	2
LUCASFILM		7	7	13	13
LUCASFILM		3	3	8	8
LUCASFILM		1	1	3	3
LUCASFILM		2	3	2	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		18	26	36	45
LUCASFILM		2	2	3	3
LUCASFILM		6	7	6	7
LUCASFILM		1	1	2	2
LUCASFILM		2	2	4	4
LUCASFILM		2	2	3	3
LUCASFILM		1	1	1	1
LUCASFILM		2	3	5	5
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		2	3	4	6
LUCASFILM		2	2	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		2	8	4	15
LUCASFILM		3	4	7	7
LUCASFILM		2	2	4	4
LUCASFILM			1		1
LUCASFILM		1	1	1	1
LUCASFILM		4	5	6	8
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		1	1	1	1
LUCASFILM		5	10	8	16
LUCASFILM		1	1	2	2
LUCASFILM		4	8	10	15
LUCASFILM		1	1	1	1
LUCASFILM		3	3	7	7
LUCASFILM		1	2	3	4
LUCASFILM		1	1	3	3
LUCASFILM		1	2	2	4
LUCASFILM		1	1	2	2
LUCASFILM		2	2	5	5
LUCASFILM		1	1	1	1
LUCASFILM		1	2	1	2
LUCASFILM		4	4	10	10
LUCASFILM		1	2	2	3
LUCASFILM		1	1	1	1
LUCASFILM		1	3	2	3
LUCASFILM		1	1	2	2
LUCASFILM		5	7	9	10
LUCASFILM		12	15	24	28
LUCASFILM		2	2	4	4
LUCASFILM		1	2	4	4
LUCASFILM		2	2	3	3
LUCASFILM		5	5	6	6
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	4	4
LUCASFILM		1	1	2	2

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		1	3	3	4
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		2	2	5	5
LUCASFILM		1	1	2	2
LUCASFILM		4	4	5	5
LUCASFILM		1	1	1	1
LUCASFILM		2	2	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	4	4
LUCASFILM		3	8	8	17
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		1	1	3	3
LUCASFILM		3	3	5	5
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		2	2	4	4
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		3	3	7	7
LUCASFILM		3	4	5	7
LUCASFILM		2	2	2	2
LUCASFILM		3	7	7	15
LUCASFILM		2	2	2	2
LUCASFILM		2	2	3	3
LUCASFILM		1	1	3	3
LUCASFILM		3	3	3	3
LUCASFILM		3	5	6	9
LUCASFILM		2	2	6	6
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		3	3	7	7
LUCASFILM		1	1	1	1
LUCASFILM		1	2	2	4
LUCASFILM		1	3	3	5
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		4	6	13	14
LUCASFILM		2	2	2	2
LUCASFILM		1	1	1	1
LUCASFILM		3	4	6	6
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	1	4	4
LUCASFILM		2	2	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		2	4	4	8
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2



**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		2	2	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		2	5	5	13
LUCASFILM		1	5	3	12
LUCASFILM		1	1	1	1
LUCASFILM		2	2	4	4
LUCASFILM		1	1	3	3
LUCASFILM		2	2	6	6
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		4	4	7	7
LUCASFILM		1	1	2	2
LUCASFILM		5	5	7	7
LUCASFILM		2	2	3	3
LUCASFILM		1	3	3	9
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		6	7	11	11
LUCASFILM		2	4	4	7
LUCASFILM		3	3	5	5
LUCASFILM		1	1	1	1
LUCASFILM		1	2	3	4
LUCASFILM		2	3	3	4
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		2	3	5	6
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	2	2	2
LUCASFILM		1	1	2	2
LUCASFILM		2	2	2	2
LUCASFILM		2	2	3	3
LUCASFILM		1	1	4	4
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	4	4
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		2	2	7	7
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		3	6	12	18
LUCASFILM		15	23	31	46
LUCASFILM		1	3	2	4
LUCASFILM		3	3	7	7
LUCASFILM		1	1	1	1
LUCASFILM		6	8	14	17
LUCASFILM		1	1	2	2
LUCASFILM		2	2	3	3
LUCASFILM		9	10	9	10
LUCASFILM		11	23	21	38
LUCASFILM		1	1	1	1
LUCASFILM		5	5	13	13

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		1	1	1	1
LUCASFILM		3	3	6	6
LUCASFILM		4	7	8	10
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		2	3	4	5
LUCASFILM		2	5	2	5
LUCASFILM		1	1	1	1
LUCASFILM		3	4	7	8
LUCASFILM		2	5	6	11
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		3	3	6	6
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		2	2	3	3
LUCASFILM		3	4	9	11
LUCASFILM		5	12	10	17
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		2	2	3	3
LUCASFILM		4	4	4	4
LUCASFILM		1	1	1	1
LUCASFILM		16	33	41	70
LUCASFILM		13	15	29	31
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		2	2	3	3
LUCASFILM		3	5	5	6
LUCASFILM		2	2	2	2
LUCASFILM		2	2	4	4
LUCASFILM		1	3	3	6
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		15	23	38	52
LUCASFILM		4	5	4	5
LUCASFILM		2	2	5	5
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		2	2	3	3
LUCASFILM		5	5	9	9
LUCASFILM		2	2	4	4
LUCASFILM		1	2	3	4
LUCASFILM		1	1	2	2
LUCASFILM		1	3	4	9
LUCASFILM		2	3	6	9
LUCASFILM		2	3	4	5
LUCASFILM		1	1	4	4
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		2	3	5	5
LUCASFILM		2	2	4	4

**Manager and Employee Counts by Employers and Titles**  
**Technical Class - 2005 - 2009**

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	4	4
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	4	4
LUCASFILM		2	5	4	9
LUCASFILM		1	1	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	2	3	4
LUCASFILM		1	1	3	3
LUCASFILM		1	1	4	4
LUCASFILM		4	4	5	5
LUCASFILM		1	1	4	4
LUCASFILM		2	5	5	11
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	4	4
LUCASFILM		6	17	14	36
LUCASFILM		2	4	6	9
LUCASFILM		2	2	2	2
LUCASFILM		12	33	27	55
LUCASFILM		1	1	1	1
LUCASFILM		1	2	4	5
LUCASFILM		9	10	15	16
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		2	2	6	6
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		30	63	69	121
LUCASFILM		11	15	19	20
LUCASFILM		2	2	2	2
LUCASFILM		1	3	3	6
LUCASFILM		1	1	3	3
LUCASFILM		3	4	3	4
LUCASFILM		1	1	3	3
LUCASFILM		1	1	2	2
LUCASFILM		1	2	4	8
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		2	2	5	5
LUCASFILM		1	1	1	1
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		1	1	2	2
LUCASFILM		4	4	7	7
LUCASFILM		1	1	4	4
LUCASFILM		1	1	3	3
LUCASFILM		2	3	4	6
LUCASFILM		1	1	1	1
LUCASFILM		1	1	3	3
LUCASFILM		7	14	12	20
LUCASFILM		5	6	9	10
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		2	2	4	4
LUCASFILM		1	1	1	1
LUCASFILM		2	3	5	7
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		2	2	3	3
LUCASFILM		1	1	1	1
LUCASFILM		2	2	2	2
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2

## Manager and Employee Counts by Employers and Titles

### Technical Class - 2005 - 2009

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
LUCASFILM		3	10	8	24
LUCASFILM		3	17	6	36
LUCASFILM		1	5	2	10
LUCASFILM		3	5	5	9
LUCASFILM		2	6	5	16
LUCASFILM		1	1	3	3
LUCASFILM		1	1	1	1
LUCASFILM		1	1	2	2
LUCASFILM		2	5	4	9
LUCASFILM		1	1	2	2
LUCASFILM		1	3	3	6
PIXAR	360_DEGREE_CREATIVE_LEAD	2	1	2	2
PIXAR	360_DEGREE_TECH_LEAD	1	1	3	3
PIXAR	ADMINISTRATOR_TECH_DEPT	6	3	13	13
PIXAR	ANIMATOR	25	113	36	385
PIXAR	ANIMATOR_DIRECTING	7	9	9	18
PIXAR	ANIMATOR_FIX	7	22	8	39
PIXAR	ANIMATOR_FIX_LEAD	2	1	2	2
PIXAR	ANIMATOR_SUPERVISING	15	11	24	36
PIXAR	ARCHITECT_SYSTEM	5	3	6	6
PIXAR	ARTIST_AFTER_EFFECTS	10	6	15	15
PIXAR	ARTIST_CHARACTER	1	1	3	3
PIXAR	ARTIST_GRAPHIC	10	9	18	25
PIXAR	ARTIST_MOTION_GRAPHIC	2	2	2	2
PIXAR	ARTIST_SKETCH	21	23	29	67
PIXAR	ARTIST_STORY	21	39	37	135
PIXAR	ARTIST_STORY_DEVELOPMENT	8	3	10	11
PIXAR	ART_DIRECTOR	18	13	24	33
PIXAR	ART_DIRECTOR_SHADING	10	4	13	14
PIXAR	CGI_PAINTER	9	14	11	26
PIXAR	CHARACTER_DESIGNER	2	1	2	2
PIXAR	CREATIVE_RESOURCES_ARTIST	1	1	1	1
PIXAR	DESIGNER	1	1	2	2
PIXAR	DESIGNER_CAMERA	3	1	3	3
PIXAR	DESIGNER_ENVIRONMENTAL	4	1	5	5
PIXAR	DESIGNER_GRAPHIC	1	1	1	1
PIXAR	DESIGNER_PRODUCTION	14	6	22	29
PIXAR	DESIGNER_SHADING	1	1	1	1
PIXAR	DESIGN_LEAD	1	1	2	2
PIXAR	DEVELOPER_RENDERMAN_PRODUCTS	1	1	5	5
PIXAR	DIR_ARTIST_MANAGEMENT	2	1	3	3
PIXAR	DIR_CREATIVE_ARTISTS	2	1	3	3
PIXAR	DIR_MEDIA_SYSTEMS	2	1	2	2
PIXAR	DIR_RENDERMAN_PRODUCT_DEV	1	1	5	5
PIXAR	DIR_STUDIO_TOOLS	2	1	5	5
PIXAR	DIR_SYSTEMS_INFRASTRUCTURE	1	1	4	4
PIXAR	DIR_TECHNICAL_ARTISTS	1	1	2	2
PIXAR	ENGINEER	2	1	5	5
PIXAR	ENGINEERING_MANAGER	1	1	5	5
PIXAR	ENGINEER_API_QUALITY_ASSURANC	3	2	6	7
PIXAR	ENGINEER_APPLICATIONS	2	2	3	3
PIXAR	ENGINEER_ASSOCIATE	1	1	5	5
PIXAR	ENGINEER_ASSURANCE_AUTOMATION	1	1	4	4
PIXAR	ENGINEER_EDITORIAL_PIPELINE	1	2	3	5
PIXAR	ENGINEER_IMAGE_MASTERING	2	2	4	4
PIXAR	ENGINEER_LEAD	1	1	4	4
PIXAR	ENGINEER_LEAD_SOFTWARE	3	5	4	7
PIXAR	ENGINEER_MEDIA_SYSTEMS	2	4	6	12
PIXAR	ENGINEER_MENV_SUPPORT	1	1	3	3
PIXAR	ENGINEER_PIPELINE	1	3	5	14
PIXAR	ENGINEER_PIPELINE_ROTATION	1	1	1	1
PIXAR	ENGINEER_PNG_LEAD_SOFTWARE	3	3	7	8
PIXAR	ENGINEER_PNG_QUALITY_ASSURANC	2	1	5	5
PIXAR	ENGINEER_PNG_SOFTWARE	9	29	19	78
PIXAR	ENGINEER_PNG_SR_SOFTWARE	3	1	5	5
PIXAR	ENGINEER_PRODUCTION_SUPPORT	2	5	5	16
PIXAR	ENGINEER_QUALITY_ASSURANCE	3	9	10	24
PIXAR	ENGINEER_RECORDING	2	1	5	5
PIXAR	ENGINEER_RENDERMAN_SUPPORT	2	2	5	7
PIXAR	ENGINEER_SCREENING_ROOM	1	1	5	5
PIXAR	ENGINEER_SOFTWARE	19	66	50	191
PIXAR	ENGINEER_SOFTWARE_GRAPHICS	2	2	4	5
PIXAR	ENGINEER_SOFTWARE_TECHSUPPORT	1	1	5	5
PIXAR	ENGINEER_SOFTWARE_TEMPORARY	1	1	1	1

## Manager and Employee Counts by Employers and Titles

### Technical Class - 2005 - 2009

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
PIXAR	ENGINEER_SOFTWARE_TEST	1	6	3	11
PIXAR	ENGINEER_SR_AUTOMATION	1	1	1	1
PIXAR	ENGINEER_SR_MEDIA_SYSTEM	2	3	6	7
PIXAR	ENGINEER_SR_SOFTWARE	9	5	22	22
PIXAR	ENGINEER_SR_SW_INFRASTRUCTURE	2	2	6	6
PIXAR	ENGINEER_STUDIO_SUPPORT	2	1	3	3
PIXAR	ENGINEER_SW_INFRASTRUCTURE	2	5	2	7
PIXAR	ENGINEER_TECHNICAL_SUPPORT	2	1	3	3
PIXAR	FINANCIAL_APPS_DEVELOPER	1	1	4	4
PIXAR	HR_APPLICATION_DEVELOPER	1	1	5	5
PIXAR	IMAGE_MASTERING_COORDINATOR	2	2	5	6
PIXAR	INTERACTION_DESIGNER	3	3	5	6
PIXAR	INTRANET_DESIGNER_PNG	1	1	1	1
PIXAR	LAYOUT_ARTIST	18	19	26	58
PIXAR	LAYOUT_ARTIST_LEAD	2	1	2	2
PIXAR	MEDIA_SYSTEMS_COORDINATOR	3	3	7	7
PIXAR	MGR_360_GROUP	1	1	1	1
PIXAR	MGR_APPLICATIONS_GROUP	1	1	3	3
PIXAR	MGR_BUILD	3	1	4	4
PIXAR	MGR_DESKTOP_SYSTEMS	2	1	5	5
PIXAR	MGR_FINANCIAL_SYSTEMS	2	1	5	5
PIXAR	MGR_IMAGE_MASTERING	3	2	5	5
PIXAR	MGR_IT_CONSTRUCTION	2	1	2	2
PIXAR	MGR_LEAD_PROJ_STUDIO_TOOLS	1	1	2	2
PIXAR	MGR_MEDIA_SYSTEMS	3	2	6	7
PIXAR	MGR_PROJECT	2	2	4	4
PIXAR	MGR_QUALITY_ASSURANCE	3	1	5	5
PIXAR	MGR_SR_PROJECT_STUDIO_TOOLS	1	1	2	2
PIXAR	MGR_SW_INFRASTRUCTURE	1	1	1	1
PIXAR	MGR_SYSTEMS_INFRASTRUCTURE	1	1	1	1
PIXAR	MGR_SYSTEMS_OPERATIONS	2	1	4	4
PIXAR	MGR_TOOLS_WORKFLOW	1	1	4	4
PIXAR	MGR_USER_INTERFACE	2	1	4	4
PIXAR	PAINTER_DIGITAL	10	12	15	28
PIXAR	PAINTER_MATTE	9	6	11	15
PIXAR	PNG_GROUP_LEAD	2	1	4	4
PIXAR	PROJECT_MGR_PNG	1	1	1	1
PIXAR	PROJECT_MGR_RENDERMAN	1	1	2	2
PIXAR	PROJECT_MGR_STUDIO_TOOLS	6	9	13	19
PIXAR	RAPD_PROTOTYPE_COMPUTER_ARTIST	1	1	3	3
PIXAR	RENDER_PIPELINE_SPECIALIST	1	4	5	15
PIXAR	RESIDENT_ANIMATION	1	2	1	2
PIXAR	RESIDENT_SOFTWARE_ENGINEER	1	1	1	1
PIXAR	RESIDENT_TECHNICAL_DIRECTOR	3	41	4	41
PIXAR	RESIDENT_TEST_PILOT	1	1	1	1
PIXAR	SCIENTIST_SR	9	6	21	26
PIXAR	SCULPTOR	7	2	9	10
PIXAR	SR_VP_TECHNOLOGY	2	1	3	3
PIXAR	STORY_ARTIST_DIGITAL	2	2	2	2
PIXAR	SYSTEMS_ADMINISTRATOR	5	16	14	57
PIXAR	SYSTEMS_ADMINISTRATOR_ASSET	2	2	3	4
PIXAR	SYSTEMS_ADMINISTRATOR_JR	1	1	2	2
PIXAR	SYSTEMS_ADMINISTRATOR_JR_MAC	1	2	4	7
PIXAR	SYSTEMS_ADMINISTRATOR_LEAD	1	3	1	3
PIXAR	SYSTEMS_ADMINISTRATOR_SR	5	11	19	47
PIXAR	SYSTEMS_ANALYST	1	1	2	2
PIXAR	SYSTEMS_COORDINATOR	1	1	2	2
PIXAR	TECHNICAL_DIRECTOR	62	292	131	841
PIXAR	TECHNICAL_DIRECTOR_LEAD	31	41	47	94
PIXAR	TECHNICAL_DIRECTOR_ROTATION	1	1	1	1
PIXAR	TECHNICAL_LEAD_BACKUP_GROUP	1	2	5	6
PIXAR	TECHNICAL_LEAD_IMAG_MASTERING	1	1	1	1
PIXAR	TECHNICAL_LEAD_MEDIA_SYSTEMS	2	2	5	6
PIXAR	TECHNICAL_LEAD_RENDERING	1	1	5	5
PIXAR	TECHNICAL_LEAD_STORAGE	1	1	1	1
PIXAR	TECHNICAL_LEAD_TELECOM	2	1	5	5
PIXAR	TECHNICAL_WRITER	2	2	4	4
PIXAR	TECHNICAL_WRITER_API	3	1	4	4
PIXAR	TECH_DIRECTOR_CRTV_SVCS	1	9	5	22
PIXAR	TECH_DIRECTOR_DEPT_SUPV	13	25	18	53
PIXAR	TECH_DIRECTOR_LEAD_CRTV_SVCS	1	1	5	5
PIXAR	TECH_DIRECTOR_SUPERVISING	18	11	34	36
PIXAR	TECH_DIR_SR_ANIM_SCIENTIST	1	1	1	1
PIXAR	TEST_PILOT_LEAD	2	1	3	3

### Manager and Employee Counts by Employers and Titles Technical Class - 2005 - 2009

Employer	Title	Managers	Employees	Manager - Years	Employee - Years
PIXAR	TEST_PILOT_SENIOR	1	1	1	1
PIXAR	USER_INTERFACE_DESIGNER	4	3	6	8
PIXAR	VISUAL_DESIGNER	1	1	2	2
PIXAR	VP_ADVANCED_TECHNOLOGY	2	1	3	3
PIXAR	VP_SOFTWARE_ENGINEERING	3	3	6	7
PIXAR	VP_SYSTEMS	1	1	1	1
PIXAR	VP_TECHNOLOGY	1	1	1	1
PIXAR	WORKFLOW_ARTIST	2	2	3	3
PIXAR	WORKFLOW_INTERACTION_DESIGNER	2	1	3	3

**Notes:**

[1] Google data does not have Manager information.

[2] Column Managers and Employees show the count of unique Manager IDs and Employee IDs by Employer and Job Title during 2005 - 2009.

[3] Column Manager - Years and Employee - Years show the total count of unique Manager IDs and Employee IDs by year and employer for each of the years in 2005 - 2009

Source: Dr. Leamer's backup data.

APPENDIX E2

## Employee Counts by Employers and Year

### Technical Class - 2005 - 2009

Employer	2005	2006	2007	2008	2009	Unique Employee Counts (2005-2009)
ADOBE	2,202	2,216	2,277	2,400	2,551	3,603
APPLE	3,343	3,673	4,231	4,933	5,571	6,908
GOOGLE	2,258	3,774	5,286	6,376	6,800	8,082
INTEL	28,989	27,780	26,709	26,390	26,458	37,338
INTUIT	1,592	1,849	2,237	2,344	2,230	3,719
LUCASFILM	2	295	587	572	626	869
PIXAR	478	550	568	666	704	848

Note: LUCASFILM data does not have title information before 2006, hence the low number in 2005.

Source: Dr. Leamer's backup data.

## Manager Counts by Employers and Year

### Technical Class - 2005 - 2009

<b>Employer</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Unique Manager Counts (2005-2009)</b>
ADOBE	425	448	428	464	493	847
APPLE	689	761	860	1,050	1,155	1,615
INTEL	5,663	4,232	4,007	4,003	3,983	8,135
INTUIT	418	448	537	542	519	1,095
LUCASFILM	2	142	199	181	184	238
PIXAR	72	72	72	80	85	132

Note:

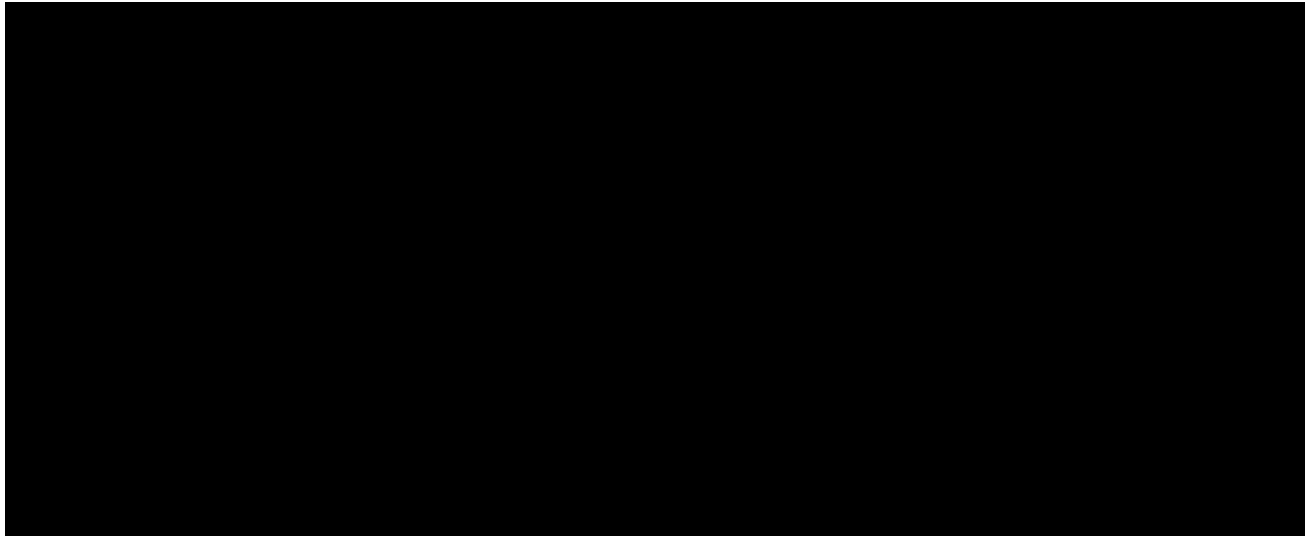
[1] Google data does not have Manager information.

Source: Dr. Leamer's backup data.



APPENDIX F

**Intel Employee Counts by Job Function  
Technical Class - 2005 to 2009**



Notes:

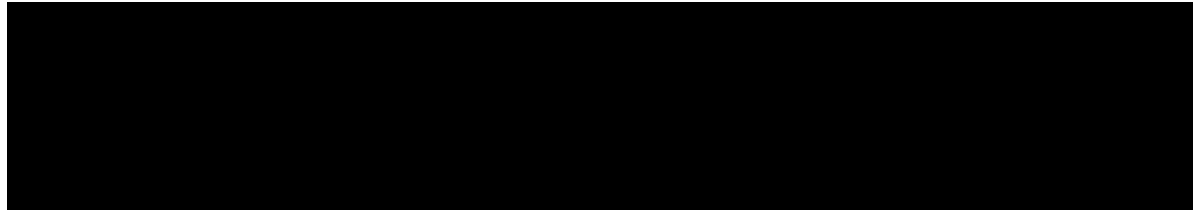
[1] Column Employees shows the count of unique Employee IDs by Job Function.

[2] Column Employee - Years shows the total count of unique Employee IDs by Year and Job Function for each of the years in 2005 - 2009.

Source: Intel compensation data. 76586DOC001050\_AEO.xls. Dr. Leamer's backup data.

APPENDIX G

**Intel Employee Counts by Region  
Technical Class - 2005 to 2009**



Source: Dr. Leamer's backup data.